



612.17

LIEBIG'S PHYSIOLOGY

APPLIED IN THE TREATMENT OF

FUNCTIONAL DERANGEMENT

AND

ORGANIC DISEASE.

WITH

OBSERVATIONS UPON HAHNEMANN'S PRACTICE.

PART I.

THE HEART, LUNGS, STOMACH, GLANDS, JOINTS, BONES, ETC.; WITH CASES
SHOWING THE ADVANTAGES OF MODERN SCIENCE OVER FORMER
METHODS IN THE TREATMENT OF DISEASE.

BY JOHN LEESON,

PRACTITIONER OF MEDICINE,
MEMBER OF THE ROYAL COLLEGE OF SURGEONS OF ENGLAND,
FELLOW OF THE ROYAL MEDICO-CHIRURGICAL SOCIETY OF LONDON,
DIVISIONAL SURGEON OF THE METROPOLITAN POLICE FORCE,
ETC. ETC.

LONDON:

HENRY RENSHAW, 356, STRAND.

1846.

P R E F A C E.

IN offering this Treatise to the Profession and the Public, I trust I shall not be considered presumptuous in attempting such an undertaking.

The science of treating every form of bodily ailment has rapidly progressed since I entered into practice about *twenty-five years ago*, and more particularly during the latter period of those years; and yet there are scarcely any who have ventured to reduce the *great modern facts* to practical purposes, so as to make them generally available in the treatment of disease.

I have endeavoured to effect this object as well as the nature of my avocation, and the means at my command, would allow; taking

nearly all the principles and cases from my *private practice*.

Trusting to the fair and liberal sentiments which now (more than formerly) prevail among the gentlemen of my profession, I have great confidence in submitting the work to their consideration.

LONDON, 4, FINSBURY SQUARE,

February, 1846.

DISEASES OF THE HEART AND LUNGS.

PRELIMINARY VIEWS.

THE respiratory organs perform such important duties in the economy of animal life, that any change of structure in them, or any imperfection in the execution of their functions, leads to results which bring upon a large portion of mankind the most intense suffering, often ending in death at all ages, and more frequently at that youthful period which is considered to be the most interesting of our existence. This being so, many scientific men at different periods endeavoured to investigate with no common degree of labour, the composition of their structure, their natural uses, and the changes which they undergo in the process of disease during the various stages of our vital career. In these labours they also considered the means by which their functions, when impaired, might be restored to their normal condition. *L*

How far success has been attained in these great and important objects is at this very moment problematical, as the number of deaths from pulmonary consumption, or from the diseases of the respiratory organs have not in the least diminished, as the bills of mortality amply attest. It may now be urged with truth, that but little or no advance has yet been made in bringing under our subjection these formidable forms of disease. These circumstances therefore have urged me to bring before the profession and the public, a work upon the diseases of the lungs and their connecting tissues, together with those of other parts with which they are in immediate and constant communication.

The experience derived from an *extensive practice* shall be contrasted with the theories which are now put forth by some of the most distinguished and scientific men of Europe, who are now explaining from chemical research the nature and character of animal existence, as well as many of those organic diseases which were before in utter obscurity.

In England, Prout and others have greatly contributed to the advancement of modern science by works in which are to be found principles established upon obvious phenomena, instead of visionary theories and fanciful disquisitions. The continental writers have also distinguished themselves

greatly in the same walks of science, and particularly the eminent professor of Giessen.

Modern science having thus made great inroads into many of the secrets of the human structure, which were but a little time before entirely unknown, there exists sufficient inducement to continue in the field of inquiry, that many more might be revealed with the same advantages to the medical sciences.

To say that the subject of pulmonary or of any other disease is exhausted would be an absurdity, as much as it would be to say, that human industry and invention had been already expended upon locomotive machinery, or the forces which propel it.

An able modern philosopher has propounded that "natural science has fixed limits which cannot be passed, and with all our discovery we shall never know what light, electricity, and magnetism are in their essence, because of those things which are natural the human intellect has only conceptions. We ascertain, however, the laws which regulate their motion and rest, because they are manifested in phenomena ; in like manner the laws of vitality, and of all that disturbs, promotes, or alters it, may certainly be discovered, although we may never know what life is."

Notwithstanding that much may never be discovered in the science of nature, it must be recol-

lected that much has been manifested in phenomena where but little was expected, and which has since created great revolutions in the destinies of science, as well as of nations.

In tracing back the history of scientific improvements, we must perceive that considerable intervals have existed between the most remarkable discoveries, notwithstanding many ardent and powerful minds were deeply engaged in them; and now that knowledge is more generally diffused over all the civilized world than it was but a very few years ago, how much more ought to be expected from similar minds now labouring in every walk of science, and particularly that of medicine.

The days of fancy and conjecture are fast disappearing in the labours of modern explorers, and in their stead we are getting principles which are established by experiments, or by results entirely free from all hypotheses. Such a mode of procedure was long wanted in our medical writings, as can be seen by taking up a work which was written some twelve or twenty years ago, and which brought to the writer great fortune and the highest reputation; and as we move on upon as many pages as the years I mentioned, we are struck with wonder and amazement at the absurdities which it contains, and its total want of consistency with the facts since brought out by experimental and statistical discovery.

By understanding the great principles according to which animal life is governed, the chemical actions of the various elements which surround us upon each other, and upon ourselves, we thus obtain a mighty power in the preservation of health, or in the treatment of functional derangement and of organic disease.

Without a knowledge of these great principles, medicine and surgery must retain much of the barbarism of former ages. The mere knowledge of the mechanism of the human body goes but a very little way towards that information which is required upon the general laws of vitality, and for the treatment of the various maladies or ills which affect the human structure ; and yet some people are found to say they cut off limbs, take out tumours, do any kind of mechanical injury to the body of man, and treat all forms of inflammation or other derangements without this knowledge !!!

The science of treating surgical disease has not progressed in England as it would have done, had chemical philosophy and other branches of medical knowledge been cultivated with it ; and so much opposed were *pure* surgeons to any such connection, that an examiner of one of our royal colleges was heard to compliment himself, in a very peculiar manner, for not knowing any one of them, although they are now considered by every enlightened mind to be essentially necessary for the perfect education of a modern surgeon.

Medicine, in like manner, did not progress, for the same reasons, with the additional fact of the physicians not cultivating those branches of science which they considered to have specially belonged to the surgeon. Between these two systems, with very rare exceptions, little had been done at home ; and for the great modern discoveries which were made in every branch of medical science, we are principally indebted to the labours and intelligence of our continental neighbours.

The late Mr. Abernethy was the only surgeon of his day who might really be termed a medical surgeon ; and although his ideas were but crude and unscientific as to how constitutional treatment should be carried out, from the circumstance of his having little or no knowledge of the laws of chemical combinations either within or without the body—principles which have been since his time but partially established ; yet he saw the necessity of possessing such knowledge, and therefore led the way to the cultivation of the new views which he had taken upon the subject,—a circumstance which must ever shed a lustre upon his name as a sagacious and distinguished philosopher. From his position in the profession as a teacher of the very first rank, students both far and near came to him for instruction, which therefore gave him the most extensive opportunities of diffusing his views in every part of the

civilized world. Under such circumstances, his doctrines rapidly spread, and as rapidly improved; for among those whom he taught was every day to be seen the triumph of his principles. It must, however, be observed that most of his pupils about this time were called upon by legislative enactments to study chemical science and the other branches of medicine conjointly with that of surgery, by which means his principles were afterwards more effectually, as they were more scientifically, carried out, than if such enactments had not been in existence. When I had the honour of acquiring professional knowledge under him, he used to say that before and during his time, hospital surgery in England was a dreadful calamity; that punishments were constantly perpetrated upon human beings in the public hospitals and military establishments of the country, far more frequent and severe than could be inflicted upon them for the worst of criminal offences, at the same time enjoining his pupils to devote a large share of their attention to the acquirement of medical knowledge, without which surgery and medicine would retain much of the cruelties and ignorance of by-gone ages. He detested the mechanical part of surgery, for he detested the sawing, cutting, probing, scraping, and other operations of the living body, because of their cruelty and needlessness; and when the old and venerate

ble gentleman took leave for ever of a class of students who loved him with all his eccentricities, he proudly boasted that within the period of *fifty years* of his connexion with St. Bartholomew's Hospital, the persecutions of the knife, saw, probe, trephine, and other deadly instruments, diminished to *one-half* in amount—an improvement mainly owing to this humane and distinguished man.*

About the same time, most of his contemporaries or colleagues in the great hospitals of London only desired the shadow of an opportunity for the display of their deadly instruments, in order to exhibit their coolness or heartless insensibility over their cruel operations, as well as to astonish the gaping students with the dexterity of their

* There is no ecclesiastical structure which has as yet opened its portals in commemoration of this great surgeon—this modifier of human misery—as he was the extinguisher of the most cruel and deadly operations. In the great Cathedral of St. Paul, situate close upon the field of his labours, a structure which had arisen for dedication to the benign principles of Christianity, we perceive, in rich and elaborate sculpture, statues representing heroes of by-gone times, decked in warlike costumes, and by their sides are seen all the emblems of war and bloodshed—all in glorification of the genius which they severally displayed in the destruction of their fellow-man. In this temple, wherein the ruggedness of our fierce and savage natures was to be softened, and where the grandeur and vastness of the internal and external fabric was to strike the mind of man with the awful majesty of Him who created every thing in nature, and rules over the destinies of the world, are to be seen these monuments of barbarism. In it also are to be found tumuli, or other monumental symbols, erected to the memories of the grasping citizen adventurers, or crafty, unprincipled statesmen, whilst this distinguished man rests in his grave neglected or forgotten.

manipulations, and so to found a reputation for future fortune and distinguished honours. Not so with Mr. Abernethy, for he abhorred the idea of acquiring either the one or the other under such a system of professional charlatanism.

The indiscriminate employment of drugs of the most offensive and drastic kind, of mineral compounds of the most poisonous description, and of the metallic salts, irritating and violent in their action, by the old and by many of our modern practitioners in medicine and surgery, often led, as they do now, to the most disastrous results; whilst those actions upon the body, the result of surrounding influences, and the principles of restoration by nutrition, and through the science of the chemical forces, were entirely unknown to them, or not respected sufficiently to be subjects for their consideration.

These systems of treatment in themselves were sufficient to derange the healthy structure, or to convert simple cases into dangerous maladies.

Wounds, bruises, ulcers, glandular irritation, inflamed textures, amputated surfaces, with all other such cases, were greatly aggravated, if not brought on to fatal results, by such treatment. The homœopathic, or do-nothing system, or the plan of letting diseases take care of themselves, would gain for the charlatan or impostor the highest reputation; whilst the character of the legiti-

mate practitioner would sink in public estimation, were he to pursue the plans which are often taught him under the direction of his Halls and Colleges. When young men have been but a few years in practice, they frequently find out the defects of the system under which they were educated, and feel as if the instructions which they had received tended more to confuse than enlighten their judgment.

There are about *four hundred and ten preparations* in the Pharmacopœia of the Royal College of Physicians, which no doubt are considered by that learned body useful for medicinal purposes, or else they would not have been retained there. It is from this collection of preparations that the medical youths of this country are instructed to cull their remedies and apply them in the treatment of every form of disease. Now, any practical man, of ten or twenty years' standing, must have found that *four hundred of these preparations* are of little or no value whatever in the treatment of any form of disease, and that about the *remaining ten* might have assisted him in reducing, at one time or other, cases occurring in every department of his practice.

Nearly all the waters, confections, decoctions, extracts, infusions, liquors, mixtures,* essential

* The brandy and egg mixture is to be considered an exception in the *misturæ*. What could be found in the whole collection of four hun-

oils, spirits, tinctures, have little or no influence over any form of disease, when used as internal or external remedies. Many of the mineral preparations are absolutely injurious in their effects under every circumstance, while the retention of other remedies is burlesque and nonsense.

Why then divert the mind of the student by compelling him to study the natural history, preparation, properties, composition, effects, and uses of such a farrago of worthlessness, while the higher and most philosophical walks of medical science are entirely kept from his grasp? Now this system must be adopted either by design or ignorance: if by the former, the persons to whom the legislature have intrusted their confidence should be discharged from their several appointments, with fine or imprisonment; or, if from the latter, be discharged as incompetent.

Hahnemann might have been considered a great modern improver in the art of constitutional treatment, had he not surrounded his do-nothing system with the most extravagant absurdities—had he not left acute inflammatory disease to the risk of homœopathic treatment: in other respects,

dred and ten preparations to excel four ounces of pure Cogniac, four ounces of cinnamon-water, the yolks of two eggs, half an ounce of purified sugar, mixed together, and to be taken until peace, comfort, and balmy sleep are provoked, after the fatigues of a Court practice, or the oppressive duties of a fashionable accoucheur.

his system often obtained great success in cases which received no advantages when under the medical treatment of some of our most *eminent and experienced practitioners*. Homœopathy has therefore its merits and demerits; and if the shrewd German had not something in his invention, he would not have received the sanction of one of our most distinguished modern philosophers.

Liebig decidedly savours of the homœopathic doctrines where he says, “that the active principles of opium and cinchona, or *other* substances having similar crystallizable compounds, being administered in *very minute doses*, will produce chemical actions in the system sufficient for the cure of disease, although they do not otherwise produce *sensible* effects.”

If such were the fact, patients need not have to complain of the nauseous quantities which they are now obliged to gulp down to reward the practitioner for his skill and the labour of his attendance, besides satisfying them that their cases are under the deepest consideration; as instead they would have the tasteless infinitesimal quantities as a vast improvement upon the more coarse and gothic remedies of the older practitioners.

Fancy aluminum, antimony, silver, arsenic, barium, bismuth, calcium, copper, iron, mercury,

iodine, magnesia, lead, potassium, sodium, zinc, (all of which are to be found in the London Pharmacopœia of one hundred years standing, with the exception of barium and bismuth,) as remedial agents, and which are yet authoritatively retained, and which have been at one time or other plied as sovereign remedies for many inveterate forms of disease; although most of them, if not all, are abandoned by every practitioner of standing and experience as the most dangerous applications for any kind of medicinal purposes. Their metallic names sound with fearful import; and the authorities who yet retain them in their Pharmacopœia as agents in the treatment of disease, have much responsibility in so doing, without again placing before the student of the present day well-digested reports as to their exact value in the practice of medicine or surgery.

As some of our best surgeons and physicians have abandoned them in their practice, this report becomes the more necessary.

The vegetable and mineral bases in combination with the several acids, should be inquired into and reported of in the same manner. Some of these preparations, such as mercury with chlorine, are most dangerous, when used by unskilful hands; and although their elementary composition have been given, their action on the

living body, as remedial agents, has never yet been satisfactorily explained.

The great object of the medical sciences is to prolong human existence to the utmost possible extent under the laws of nature. In our first attempt to do this, we should obtain statistical accounts of the habits, diets, or other circumstances under which the greatest ages have been attained. The longest periods of existence are well known to have been attained without any reference whatever to medical science. Many of the ancient Greeks lived to a great age, upon diets vastly different to our own, and at a time when the anatomical and physiological structure of the human body was but little known, and when chemical science, as applied to the treatment of disease, had no existence. In their habits they were known to be simple and frugal, living principally upon fruits, vegetables, and water. Some took the Falernian or Chian wines in moderation, or took them with no alcoholic impregnation beyond what was produced by vinous fermentation. The process of distillation was unknown to them for several centuries, and happily so, for it kept the minds of their poets, philosophers, and statesmen, in that condition which enabled them to transmit to succeeding ages the brightest and most profound beauties of classical literature.

Passing over the first part of the early history of man, that is, when human life was said to have extended to centuries, I go to comparatively modern times, when persons were known to have lived to great ages, although not to centuries. About this time medical science in England and other parts of Europe had no advantages, because it had nothing but the grossest or the most crude absurdities for its foundation; yet human life was greatly extended in the persons of Thomas Parr, aged 149, Henry Jenkins, aged 169, in England, besides in many other persons who lived to a great age. On the Continent there were Peter Rovin, aged 172, and Peter Zoten, aged 185, with several others who lived to a great age. The authenticity of the ages acquired by the several names which I have mentioned has never been questioned. All the circumstances of their lives would afford an ample field for contemplating the means by which mankind might obtain the full end and term of human existence.

The extension of life, and a continued freedom from bodily pain and suffering, depend more upon keeping strictly to habits of nature, than to anything which could be done by the application of medical science, except when mechanical injuries, atmospheric changes, dissipated or ill-regulated habits, have occurred to produce deviations from the normal condition.

The voracious and depraved appetites of man are so great, that they far outstrip the carnivora in brutality. The fiercest of the latter will have fresh juicy meat for his repast when hunger stimulates, while civilized man often waits until his meat becomes putrescent before his appetite can receive those refined feelings of delight without which his existence would be a misery to him.

The human being first begins upon the milk which its female parent secretes, then goes on upon the milk of animals, accompanied with preparations from the cerealia, or mild vegetable productions; and soon after this the people of Northern and Western Europe add fresh juicy meat to their means of subsistence. These may be said to constitute their natural food. In his fresh meats civilized man soon tires, and takes to those which are salted and smoke-dried, then to putrid fish, as the blawn fish of the Zetlanders,—to putrid mutton, venison, game,—thence he goes to the bowels of birds and beasts, and to the fattened liver of the goose whose body had been emaciated for the benefit of his liver, which is to be turned into a pâté for tickling one of his fastidious sensualities. Upon the same principle according to which the goose is treated, the gourmand fattens his own liver and makes his body spare and wasted. For this purpose a warm climate will do instead of fire or artificial

heat, and the *pâté de fois gras* instead of the exuberant meal of the goose.

The human animal thus far surpasses the other in every particular of brute-habits as to his food, for he is constantly contriving provocatives to make him eat that which he does not want—then he deposits fat throughout his structure, and particularly in his liver—his digestive functions become impaired—the serous tissues of his body throw out a thin watery liquid—his system becomes attenuated, and the last stage of dropsy puts an end to his gluttonous career by terminating his unhappy existence, if apoplexy do not anticipate this course of events.

All the experiments made by Majendie and others upon the digestive powers of dogs as regards the several kinds of food go for nothing, except as matters of curious inquiry; since few persons could be found who would confine themselves for more than a few days at the most to any one of the foods which were the subject of experiment. Raw bones, boiled bones, sugar, glues, jellies, and other materials of these experiments are very unlikely foods for human purposes; besides, any one of them could not supply all the materials which are absolutely necessary for the wants of the various tissues of the body.

Our natural instincts are not always sufficient to guide our appetites, for the child will often

eat with a sort of voracious delight many kinds of food which are totally unfit for its use. The diets so selected would in a very little time excite glandular disease, followed by wasting or some other appearances indicating a most unhealthy condition of the system ; therefore children, like adults, are not fit to be allowed to satisfy their appetites from these instinctive feelings, but should be made to do so under the guidance of those who are competent to direct those foods which are fitted by nature for their uses.

The simple foods which are used in savage life are more natural to man than those which are used among civilized nations, and hence it is that the savage often displays in his person the very perfection of the human structure. The lower classes in our agricultural districts, who yet retain many of the primitive habits of their ancestors, often exhibit in their persons the same perfection, while the same classes in our great cities, towns, and villages, have degenerated into a pale, squalid, and filthy population, from the facilities which are offered to them for the indulgence of every vice and passion which can stunt their bodies, deprave their habits, and weaken their intellects, so as to deprive them of those physical and mental resources which nature intended them to have for her wise purposes.

The richly seasoned and laboured dishes of the higher classes are to them as the poison which is put down for the destruction of insectiferous animals. The dish is placed containing the deadly bitter masked by the luscious and fragrant honey, which they devour with evident delight; after which the intention of the poisoner is accomplished with most unerring certainty.

A gormandising laboratory is carefully constructed in an apartment in the house of every rich or great man, a cook with a large retinue of assistants to follow are employed to elaborate the creatures of the land, the air, and the water; regiments of wines, vinegars, sauces, and pungent spices, are marched with them into the copper casseroles, there to stew for hours together under the decomposing influences of air, heat, water, and metallic utensils. The cook glorifies himself in the perfection of his art, and the possession of a handsome income for its application—his lord and master delights in the poisoned meal, and the few ounces of food which are necessary to his wants are swallowed down with infinite delight; after which it insensibly acts upon the nervous system, and before many years are passed, paralysis, mental imbecility, and general bodily decay, are the results of his deviations from natural dictates.

After death, copper, iron, arsenic, or other

metals, are found in his system, and there blazoned forth to the uninitiated as being the natural constituents of the human body.

To prolong human life to that extent which nature designed for its existence, we should know by what system of living the greatest ages in man have been attained.

There are no accounts whatever given by medical writers of the lives, habits, diets, occupations of such individuals, although myriads of books have been written by them, each one striking out with his own peculiar theories upon the preservation of life and the treatment of disease, according to the vagaries of his own imagination ; while the various phenomena through which human life has been commenced, carried on, and taken away, occupy little or no part of his consideration.

Old age has been obtained in all climates, and under all circumstances. Man flourishes alike in the hot, the temperate, and the cold, and under every form of diet ; and where medical knowledge is least, he often thrives most.

The vices of civilized communities thwart his growth, and disorganize his several viscera ; so that medical science is more necessary for his well-being, than it is for those who live in countries where their habits are simple and primitive.

The study of such sciences should therefore be free and unshackled : all monopolies and interest-

ed obstruction should be abolished, and the students' minds should be directed to those points of study which are really necessary for the preservation of life, the management of disease, or of any of those mechanical vicissitudes to which the human body is liable.

An immense portion of the squalid population of London, who suffer from their vices, crimes, or improvidence, have bleeding, cathartics, emetics, blisters, and the other paraphernalia of our hospitals, infirmaries, and dispensaries administered to them, instead of nutritious food, cleanliness, and clothing, with a proper system of medical police and pastoral control.

Nearly one *million* of pounds are annually spent upon the emaciated community, which is a crying reproach to the intelligence of those who should, from their opportunities, be fully cognizant of their misapplication. As, however, a further discussion upon this part of the subject would be foreign to my purpose, I shall leave it in the hands of others, in the hope that it will be prominently placed, at no distant period, before the public and the legislature.

LIEBIG'S THEORY OF THE CHEMICAL FORCES.

GENERAL PRINCIPLES. The theories propounded by Liebig, although not altogether new in many instances, are nevertheless put forward under appearances of greater perspicuity than was accomplished by any former chemical philosopher. He exhibits the various relations of animal existence in a manner at once striking and profound, at the same time creating an interest for extended inquiries in the minds of those who desire to be more immediately connected with this branch of medical literature. There can be no other way of explaining the laws of life and sustenance with anything like certainty than by chemical analyses, as the resulting phenomena determine without much ambiguity the nature of the one, and the manner of the other. This was done in many instances by the learned professor by means of analytical demonstrations the most clear and intelligible.

Thus it is that a status is given to the science of animal chemistry which it never had before

in Great Britain. That science which expounds the nature and qualities of our daily food, and its manner of assimilating when submitted to the digestive powers of man and animals, must be the principle groundwork of every system of medicine.

Liebig next shows how the elements unite with the oxygen of inspiration, and also the various courses through which the several combinations are thrown off from the system; and then by an analysis, when they become excretory products, proves their identity in composition with the various foods, inasmuch that their elements are to be accounted for out of the oxygen of inspiration, as well as out of the components of all the liquids and solids which are submitted to the digestive functions for our subsistence.

By these operations he avoids theories, and assumes to settle his opinions by the more sound and substantial methods of obvious phenomena. If he occasionally err in making out some of his positions, or is not sufficiently plain in the manner of propounding them, or is unfortunately above the comprehension of his readers in some things, such faults do not peculiarly belong to him, when it is known that many men of every age and country, when leaving behind them much that was valuable to posterity, also left much that was gross and ridiculous. His ana-

lytical proofs constitute the greatness of his work, as without them the labour he bestowed in its composition would be worse than useless.

As he proceeds onwards he says, "the first condition of animal life is that of nourishment; the second, the absorption of oxygen from the atmosphere."

LIFE. In the foetus in utero there can be no doubt of the correctness of the first position, whilst the second is exemplified extra uterum by an analysis of the arterial blood, and of the air exhaled from the respiratory organs. The arterial blood is found to be charged with oxygen, and the exhaled air with carbonic acid and water. Again he says, "that all vital activity arises from the mutual action of the oxygen of the atmosphere and the elements of the food."

Heat, nutrition, reparation, and excretion, are the several principal phenomena by which the vital activity is kept up. Heat is generated out of the union of carbon and oxygen, and also out of hydrogen and oxygen; nutrition from the food, out of which are produced reparation and excretion. All these conditions were known before, but none of them were so well analysed as by the learned professor himself.

The action of oxygen upon the living body is a demand for food or for death. The food dis-

closes all the elements by which the destructive influence of the oxygen is neutralized, and every part and tissue of the system maintained. The various properties of air and food ought therefore to be well understood as necessary to the successful management of health, derangement, and disease.

After parturition these positions become reversed, the primary actions being atmospheric—the secondary relating to nutrition, and each acts upon the system according to season, climate, and other circumstances. The first must go on at every breath we take—the second may be perfect, partial, or abolished by the force of human circumstances.

When nutrition is perfect, we have activity, health, and spirits, without corpulency; our mental and physical powers are in perfection. When partial, we lose them and acquire instead constitutional derangement, which may be succeeded by organic disease. When abolished, the system must surrender to the destructive action of the oxygen of inspiration in the following order:—fat (carbon and hydrogen), flesh (carbon and nitrogen), brain and nerves (albumen and the fatty acids), after which are produced delirium and death.

The carbon of the fat unites with the oxygen of the blood, and is given off in respiration in

the form of carbonic acid, while the hydrogen of the fat unites with another portion of the oxygen of the blood, and is given off in expiration in the form of water—the fibrine is absorbed upon similar principles; and lastly the brain and nerves, leaving the bones with the membranous and other tissues untouched.

The gases derived from the food, and by which animal life is protected, are carbon, hydrogen, and nitrogen,—they act in all the chemical combinations with the oxygen of inspiration, the human body itself instinctively regulating all their movements and adaptations in such a manner, as in some instances to be beyond the comprehension of our ablest philosophers.

ANIMAL HEAT. Animal heat is produced by the union of carbon and oxygen, and hydrogen and oxygen. Sir B. Brodie, and some others before him, assert that animal heat emanates from nervous influence alone; and these assertions are grounded upon the fact, that if a nerve be put under pressure, the parts to which its branches are distributed lose their heat; and, on the contrary, when the pressure is removed the heat returns. All the vital actions being under nervous influence, if that influence be removed, the actions at once cease; therefore heat ceases to be produced as “no further combination of

the gases can be effected." In illustration, it might be said that if the left hand hold a vessel containing water, and the right another containing sulphuric acid, and that one or both hands are paralysed so as to prevent a mixture of the two liquids, the heat which they are known to produce by their union cannot be brought out, and this arises from the paralysis of the nerves which govern the movements of the hands, and not from the nerves themselves having the power of producing heat, except as a secondary influence in ruling the power of motion in either hand.

Again, supposing that animal heat begins in the nervous system, by what phenomena does it originate? The person whose theories Sir B. Brodie adopts does not explain.

Dr. Prout says, that "the solidification of the albuminous materials in the blood, into the gelatinous, albuminous, and fibrinous tissues in the extreme capillary vessels, is probably one immediate source of animal heat." Liebig's theory appears to me to be the only one which is founded upon anything like reason and experimental philosophy.

The warm temperature which is kept up in the system, serves to keep the blood in a state of fluidity, and prevents the stearine in the fatty tissues from setting, by which the various mo-

tions of the body are facilitated. It further enables us to resist cold, and assist in the removal of the various worn-out tissues through the different excretory channels, and also in the deposition of the reparative materials in their stead. In every alteration which takes place it is necessary, so that the existence of animal heat is a *sine qua non* with man, as well as with all other warm-blooded animals.

In northern latitudes, the inhabitants live upon fats and oils, by which they are enabled to generate heat, so as to preserve the system against cold, and to meet the demands of the inspired oxygen, which is more concentrated, and consequently more arbitrary in its action upon the system, than it is in milder and much warmer situations. Between the tropics and the neighbouring countries, heat is supplied out of vegetable productions, the system elaborating from them all the carbon and hydrogen which are necessary to sustain it: there is less carbon and hydrogen necessary in such climates, from the circumstance of the surrounding atmosphere not abstracting the same amount of heat as it must in the colder and more inhospitable regions, and the fact of the atmosphere itself containing less oxygen. In England, these principles can be illustrated in our winters and summers, by our desire for the fatter and more oily kinds of food in winter, and the

more cooling vegetable and fruity diet of the summer.

Alcoholic solutions are said to have the effects of fats upon our cabmen, coachmen, and others, during our winters, in the production of animal heat; it might also be said that the same persons continue the habit in summer as well as in winter, and find the summer bibations quite as agreeable, although not so necessary. However the alcoholic solutions may approximate in their amount of carbon and hydrogen to fats and oils, the difference of composition in each class is yet sufficient to maintain the most distinctive characters between them. The opposite characters of taste and smell are too well known to observe upon; in fluidity there is also a well-known difference, and the heat which is necessary to boil one, will immediately dissipate the other. The rugged cares of life are said to vanish before the influence of the alcoholic solutions; while the fatty ones, in small proportions, often produce nausea, sickness, and biliary derangements. When anhydrous alcohol gets into the stomach, it acts as a mortal poison, not only by its peculiar stimulus upon the nervous system, but by abstracting the aqueous particles from the soft tissue of the stomach, with which it comes into contact, so as to destroy its organization. There are no known fats which can effect the same destructive influence.

When alcohol is taken largely hydrated, and in moderate quantity, it exhilarates without producing constitutional derangement; but when, on the contrary, it is frequently taken, or is abused, it impairs the nervous functions, often bringing on trembling delirium: after which follows a permanent degeneracy of the moral and physical resources. Fats, on the contrary, when taken even in inconsiderable quantities, act on the bowels, or excite bilious vomitings, such being the effect of want of time for their removal by the oxygen of inspiration.

When fat is elaborated from the cerealea, in conjunction with fibrine and albumen, from the fleshy parts of animals, no such effects are produced, the fat being slowly formed, and as regularly removed by the oxygen of the atmosphere, which carries it off in the pulmonary exhalations as carbonic acid and water, leaving the excess, if any, to be deposited among the various fatty tissues, for other useful purposes in the animal economy.

The heat which is generated in the bodies of man and of warm-blooded animals is uniform, although the elementary bodies which unite to produce it, present themselves in variable quantities, and are expended according to exercise, climate, or other casual circumstances. In running, the balance of heat is preserved by the quan-

tity of aqueous fluid which is lost from the surface of the body ; and in all other cases provision is made for the same purpose, except where they are denied by the casualties of human existence. When the carbon and hydrogen of the food are not carried off in the respiratory or other excretory processes, they become fat, and as such are distributed more or less among the various fatty receptacles which are intended to receive it. This fat then becomes useful in facilitating the actions of the muscular fibres upon each other, as well as the tendinous ends of the muscles, by which the various motions of the body become accelerated ; and it further becomes a reserve in case of a deficiency of food arising from accidental circumstances, by which the destructive influence of oxygen is mitigated until circumstances restore the natural supply of food by which the same actions are more properly continued.

When fat is largely deposited upon the various tissues, or beyond what is required for the useful and necessary purposes of the system, it becomes a matter of disease. It offers a distressing impediment to the action of the respiratory functions, and leads to an increased secretion from the serous membranes, out of which the various forms of dropsy arise. It introduces disease between the coats of the arteries, which result either in the production of aneurism, or in malignant ulcer-

ation. It further leads to the deposit of cholestérine in the gall-bladder, which has, upon analysis, all the constituents of fat acquiring a wax-like hardness, and often so abundant as to fill up the entire space of the gall-bladder, by which the uses of that vessel become almost obliterated. In fine, it offers everywhere an obstruction of some sort or other, and particularly in the liver of those Europeans who exist in warm latitudes, producing the *foie gras*, until at last organic disease becomes so general, as to leave but little hope of restoring the system to its normal condition.

According to the laws of the chemical forces as they are now propounded, such accumulations might be readily removed by the pure air of our mountain districts, by active exercise, and spare diet, by which the oxygen might be brought into full play, and so remove these unhealthy depositions through the several excretory outlets which belong to our structure. A few cases treated in this manner would be an agreeable way of speedily testing the beautiful and rational theories of the very eminent professor who founded them.

ATMOSPHERIC INFLUENCES. Few can doubt the influence of the air and temperature, which Nature provides for every part of the creation, and particularly for that of man, when it is considered how difficult it is to resist its contaminat-

ing influences at partieular periods or seasons of the year. At one time it influences the whole of nature by depressing or subduing all of animal existence ; at another, by expanding and elevating the same, and thus producing actions diametrically opposed to each other, and by which our organisms are regulated. With these palpable differences of action, have we not an ample field for inquiry into the nature of the forces by which they are governed ? In the most perfect systems of health, we have external influencees, producing inflammation of the coverings of the brain, or painful teething in one individual ; in another, inflammation of the mucous membrane of eyes, nose, and fauces ; in another, inflammation of the pleura, liver, or peritoneum—or of the mucous membrane of the stomach and bowels—or of the fibrous membrane, producing gout and rheumatism ; and so on, and all from the same atmosphere acting upon different systems, the peeuliarity of constitution giving varieties of form even in the same disease, and by which we are bound in our treatment to be accordingly regulated. Eruptive diseases arise from the same causes. It is known that, in electrical states of the atmosphere, fermented liquors are suddenly and entirely changed in their chemical combinations, and utterly unfitted for the purposes for which they were produced. Animal and vegetable matter have yielded in the same manner, and have

become, in a moment of time, putrid ; and in the living body, I have seen persons struck with the same influences, running through all the gradations of visible health to that of death, in the short space of a very few hours. With these astounding facts before us, how difficult it must be, at certain times and seasons, to guard against such influences. The various noxious effluvia emanating through the openings into the under-water and soil-courses of our great cities, arise from the atmosphere, at certain seasons, being abundantly charged with oxygen, acting upon the dead animal and vegetable matter which they contain, and out of which the various combinations of carbon with hydrogen, sulphur with hydrogen, ammonia with other offensive and unhealthy combinations, enter the respiratory organs, and produce nausea, headache, loss of appetite, ending in general constitutional derangement, if not in miasmatic fevers, from which recovery is too often hopeless. To know how these various elementary bodies play with each other, and drop into their several combinations, would be to know how their polluting influences could be counteracted.

These are but parts of the bad results of the chemical forces acting in our great towns and cities, and from which often spring much constitutional derangement as well as epidemic disease.

NUTRITION. Liebig wisely says that the "deprivation of food soon puts a stop to all manifestations of vitality." It would be difficult to dispute the soundness of this aphorism, when we can so readily discover in ourselves the depressive effects of even a temporary suspension of the ordinary means of nutrition. Without food, it takes but a very few days for the destruction of life. Upon an incorrect system of diet, we speedily experience functional derangement; upon an extended period, this condition will arrive at organic disease. As so much, therefore, depends upon a correct system of dietetic management, we should be well acquainted with the elementary composition of everything which we take as food or drink for our sustenance. It is not enough to know so much of their constituents, without knowing how the elements of which they are constituted take up their respective positions in the various tissues and parts which make up the animal structure. It is known beyond a doubt that the various parts of our structure, when again resolved into their original elements, correspond with the various substances which we take as nutriment. But it yet remains difficult to explain the adjustment of the several forces within the system, and as to how every structure or tissue becomes renovated, and the part which the system plays in governing or directing the whole of such operations.

It is said that the fat of food will produce the fat which is deposited in the various parts of the human structure. But it has not been made out how this transfer is effected. Fat must be resolved into its original elements, for the purpose of animal heat and reparation ; but when the elements of fat are more than are required for such purposes, they again re-unite, and become deposited upon the several parts, as before mentioned. To know how such actions are conducted within the system might be more curious than useful, except when steatomatous accumulations occur so as to interfere with one or other of the parts or organs wherein they are situate. Animal and vegetable fibrine, albumen, and caseine, or the proteinaceous compounds, must all be resolved into their original elements, before the system will admit them to become parts of itself ; thus showing the determination of nature in selecting and appointing all which is fit to be preserved for the general good of the system, while she eliminates all the rest in the excretory products, as she would any foreign body which might gain admission within her portals.

It is not without extreme wonder and admiration that we can suppose an evolution of all the gases, succeeded by other great and important elementary changes in our system, without our feeling any painful or unpleasant sensations ;

while, on the contrary, we experience the most profound and pleasurable repose, such as nothing can confer upon us besides those of the mighty powers of nature. To understand all the rationale of such changes is now the occupation of the most ardent and distinguished chemical philosophers throughout Europe; and how far they may succeed in their explorations among them, will be best understood by those who are to succeed us in the same walks of scientific research.

To carry out the projects by which human life can be maintained or prolonged by sustenance, the human organization must be complete in all its parts, so that the waste which is constantly occurring might be supplied out of the food which we take, in the most perfect manner. The nature and quality of food should be our next consideration, and of which I shall speak a little farther on.

The grades of life are so many, and most of them being bound by various occupations of necessity, thus become warriors against themselves; and but few who are so situated ever reach that age which is considered to be the natural term of human existence. Among the independent and aristocratic classes, the same results follow from the very opposite circumstances. Again, life ebbs as the organic functions wear out, however prudent and careful we may be in travelling after the paths of nature. The medical sciences, notwith-

standing, mitigate a vast amount of the evils arising from such causes; and by increasing our knowledge of them, we may reasonably hope to do much more in alleviating, if not subduing, the bodily sufferings of our fellow-creatures, whether they be artificially or naturally produced.

It requires, then, a perfect system of organization for the operations of the atmospheric influences, for assimilation, and for the excretory actions. If they are not thus circumstanced, there must be functional alterations or organic change, while if so, the various structures of the body cannot undergo that renewal which they necessarily require; they then perish, and become as foreign bodies, leaving the rest of the vital powers to act for their expulsion. Should they fail to do this, they then give way, and so is destroyed that system which originally was so well constructed.

In the early condition of all animal structures, the nutrition required, and the food consumed, are much greater than in any of the after periods. As life advances, and growth becomes completed, and the procreating secretions have become diminished, nutrition is not so much required; and hence it is that the appetite for food is also diminished in persons who have grown old, such being the instinctive changes arising from natural decay. If such persons force a desire for food beyond this, constitutional derangement is the certain

result, out of which spring other changes, which develop themselves in many of the maladies with which we are so familiar. In the various phases which occur between manhood and old age, the same principles would apply with regard to physical exertion. Bones, capsules, tendons, muscular fibres, cellular structures, or parenchymata, and other parts of our physical powers, become dryer, harder, and more inelastic, or unyielding; therefore, any undue call upon them wears them out the sooner, and brings on all the infirmities of age long before they would have set in, had the same parts been moved by none but those which arise from the instinctive faculties which are given to man and animals for their regulation, according to their natural feelings.

To eat more than the system requires is a grievous attack upon the natural functions. To exercise or labour more than the physical powers can naturally sustain, is a further delinquency.

The diminution of appetite which takes place with the progress of age, is attended with a corresponding diminution in the quantity of oxygen which gains admission in the inspiratory process. The inspiratory actions become slower and less extensive, owing to the chondrinous ends of the ribs assuming more of the bony formations; and this, with the increased rigidity of the fibres of the thoracic and other muscles, enables us to account for

the changes to which I have alluded. But if the loss of appetite be greater than what naturally should exist as belonging to the mere diminution from age, then the oxygen would exert its destructive influences, the same as it would under the circumstances which have been already under consideration.

FOODS. The food of man differs according to the climate or country wherein he is located. The inhabitants of the same places live very differently from each other. Each of the classes live according to their grade; and the persons of each grade live according to the caprice or means to indulge his appetite. In taking countries by the masses, we shall find that many nations live upon vegetable diet alone, whilst others employ animal food exclusively, and many more live upon animal and vegetable diet conjointly. Millions among the Eastern nations live almost exclusively upon the former diet, and it is said that about twenty millions of the people of France live upon the same food. In Great Britain, about ten or twelve millions of the population live principally upon vegetable diet, and many of them have their mental and physical powers developed in the highest perfection.

Chemical analysis has made out an identity of constituents in the vegetable and animal foods,

and the caseine in the milk of the mammalia. When such has been shown to be the case, we cannot doubt the power of man readily to accommodate himself to the various foods which might be presented to him for use by the force of circumstances.

Meats assimilate more readily than vegetables in consequence of the greater similarity of composition between them and the materials of the human structure, than exists between those of the latter and of the vegetable classes. In the stomach the elements of the one are more speedily resolved and placed in their several positions, whilst in the others a very much larger quantity is required to be acted upon before the same amount of nutrition can be obtained, which is found in meats in a more concentrated form; besides, the assimilation takes place with less labour, and the stomach is less incumbered by the weight of food, and less liable to flatulencies from the development of the gases, and their subsequent arrangement, than when the meal consists principally of the flesh of animals.

The graminivorous animal which we use for our food, can on account of the peculiar conformation of his digestive organs assimilate greens or uncooked vegetable matter much more easily than we can do for ourselves, while the same

matter must undergo a preparatory process which entirely alters the character of the same food, before it could be safely used for our sustenance.

Raw flesh meats could be assimilated in the human stomach much better than vegetable matter in the same condition, a fact which would induce us to believe that the natural food of man should be animal, while the vegetable is secondary, but made quite as necessary for him only by those contrivances for which the human intellect is so well fitted. Animals, therefore, labour in the vegetable kingdom for our use in every respect, and we accordingly employ them as our convenience or necessities may require. It cannot be strictly said that when we do not use for our food the flesh of animals, that we do not live upon animal food dict. Eggs, milk, cheese, butter, fats, fishes, fish oils, vegetable oils, are all made up of animal matter, except the latter, and this is analogous to animal fats, and have the same effect as they have when submitted to the action of the digestive functions, except in their not giving off so much feculent matter, a material absolutely necessary to be largely blended with our food in order to keep up the peristaltic action of the alimentary canal. All kinds of pastry and pudding have much animal matter in their composition ; but

they are improper to use as principles of diet for the reason of their inducing the bowels to become torpid in their actions, and thus bring on a tendency to hæmorrhoidal disease.

The various foods, when submitted to the action of the digestive apparatus, evolve their elementary particles conformably to their character, and in accordance with the constituents of the air admitted through the respiratory organs. Some kinds of food digest more slowly than others, or in proportion to the cohesion of their particles with each other; others digest more rapidly from lightness or looseness of their texture, and therefore evolve their elementary constituents accordingly. The union of the various elementary bodies with each other depends upon their chemical affinities, and in the order as they are evolved from the substances in which they are contained, so are the various combinations formed. But when the more solid textures are finally resolved, a fresh adjustment of the gases takes place, out of which new compounds are produced. Such changes go on from time to time, until all the elements of which our food is composed are disposed of according to the nature and wants of every part of the system.

When two elementary bodies form a union, a third is formed differing entirely in structure and character from either of the two of which it was

composed; and such is the varied powers of the chemical forces when brought to bear upon each other, that detachments and combinations among them are everlastingly occurring; and upon the knowledge of these varied combinations and alterations, which take place under the instinctive regulations of the animal economy, does our management of health and disease principally depend.

The various foods which are used in this great city by its mixed population, are as strikingly different as anything can be in their nature and character from each other; besides being so as diets from nature, and from artificial production. The royal and aristocratic tables have their Udes or Caremes at yearly incomes equal to some of our minor judicial functionaries, to supply them with dishes, the result of the most refined transformations springing out of the art of culinary chemistry; and for which glorious science they have received a status which is not inferior to many of those which have been acquired in the higher walks of scientific or philosophical research. For the *few ounces* of food which are necessary for the sustenance of a portion of our species, are such absurdities encouraged and dyspeptic alterations produced, while the same insignificant quantity taken in a simple and natural form, would insure a healthy struc-

ture abounding in every perfection which affects the moral and physical qualities ; besides reduce man's wants within a very limited sphere, by which his temper and happiness is preserved under many of the vicissitudes of life to which he is so often exposed. The practitioner who generally has the confidence of this class, seldom or ever takes the trouble of diffusing any knowledge or information upon the dangers which must arise in the system out of these extraordinary and improper modes of nutrition. There was one of them who told us of everything which he saw in the dead body as the result of disease ; but he never said one word as to the causes which produced them, or as to how they were to be remedied upon grounds coming out of his long practical experience. Since his death nothing has appeared from his successor worth the slightest consideration for scientific research. His great merit was said to be the inexhaustible invention of agreeable remedies, with which he kept up the confidence of his patient when no hope existed, until the very moment when that life which was so dearly cherished had fled never to return. He is now gone, having carried all the secrets to the grave with him, leaving to his successor the privilege of possessing an instinctive genius by which he might find out the means of prolonging life, or averting from

those whose confidence he possesses those maladies or infirmities which are the common lot of mankind. How far science may advance under the present attaché, is quite a matter for future speculation.

The food and drink which are used by the middle and lower classes occupy a wide range for the consideration of the scientific practitioner. Water is the medium by which many foods are reduced or prepared for man's use. It is also the medium by which nutritious matter is introduced for our sustenance. Waters differ from each other materially in the nature and character of their several impregnations, and the urinary and other excretions will be affected according to the water which is employed for internal purposes. Water is more or less the principal constituent of the following liquids: Tea, coffee, chocolate, other vegetable infusions, beer, porter, ale, cider, vinegar, wines, ardent spirits, juice of oranges, juice of lemons, and of other fruits, herbs, vegetables, bread, milk, fishes, crustacea, beef, mutton, pork, poultry, venison, game, eggs, mushrooms; pepper, spices, mustard, almonds, nuts contain smaller proportions; cheese, butter, fats, vegetable oils, little or none. The whole of the above are in daily use with one class or other of the population. The incidental introductions which accompany some or other of

those when used as food and drink, are acetates and oxydes of copper, sulphate of iron, acetate and sulphate of lead, sulphate of alumina, chloride of sodium, nitrate of potash, phosphate of lime, carbonate of ammonia, sulphuric acid, powerful narcotic bitters, kino, logwood, annatto, irritating stimulants, putrid animal matter. Some of these are wilfully employed for adulterations. All the above foods and drinks are submitted to endless combinations with each other by mixing, or are further changed by boiling, roasting, stewing, steaming, baking, by which many of them change their chemical proportions immediately upon the application of heat and moisture, while others acquire dangerous properties in the vessels wherein they are made to undergo their several alterations. Such, however, are the various substances which from day to day enter into, or become part of, the bodies of our population.

It cannot inspire us with wonder when analytical chemistry discovered in the various materials which make up the human body, the copper, iron, lead, and other poisonous substances, to which I have alluded. In like manner are the various excretory products altered in their natural character by impregnations arising out of similar factitious introductions.

The milk secreted in the human female is more or less influenced in its composition by the

dietetic and incidental materials before mentioned; but, fortunately, the nature of her position requiring her to take much of the milder liquids, their effects as poisons become greatly mitigated. The infants springing out of the population of large towns and cities are nevertheless often the subjects of constitutional disturbance, glandular disease, or deformity, arising from the foreign impregnations in the milky secretions upon which the infant structure is to be developed. Similar mischief is produced out of the aliments with which infants are supplied after being weaned from their accustomed maternal secretion.

As the matters introduced into the body, so are the excretions, unless when the latter are the result of constitutional disturbance, or of organic disease. In the first case careful diet and regular habits will re-establish the healthy state of the secretions when they have been interfered with by mere irregularities. In the second case a knowledge of the cause of disease will direct the proper remedies for its removal, upon which the excretions will assume their natural condition.

EXCRETIONS. The excretory outlets are the lungs, skin, ductus communis choledochus, rectum, and urethra.

The lungs absorb, according to Liebig, $32\frac{1}{2}$ oz.

of oxygen daily, and require 13·9 oz. of carbon from the food to neutralize it. Out of this combination the heat of the body (of which I have previously spoken) is generated. I am not prepared to believe that either the one or the other is burnt in the combination, however high the authorities may be who have asserted as much, from the fact of combustion producing a much higher temperature than the bodies of animals or of man could possibly sustain without their immediate destruction.

When the two gases meet in the system, no doubt heat is produced; but such heat never reaches to more than one hundred in any part of the human body, or of those of animals. The gases excreted by the lungs are the carbon of the food, and the oxygen of inspiration forming carbonic acid—and the hydrogen of the food, with another portion of the oxygen of inspiration, forming water. To these changes I have already alluded.

Any excess of the gases or of animal heat is provided for by the self-regulating powers of the system, and is adjusted accordingly; and as these arise in the various stages of assimilation, changes so wonderful in their contrivance are produced as to be quite beyond the penetration of the most enlightened modern philosophers.

The skin absorbs oxygen from the atmosphere,

and like the lungs gives off carbonic acid and water; the secretion of the latter in warm weather is sometimes profuse, and often impregnated with the acetic acid of vinegar, wine, beer, pickles, when such have been taken, and with other flavours, such as onions, garlic, or other strong-scented vegetables which are often used as ingredients in the culinary art. Persons should be careful in producing disagreeable exhalations from the skin as well as from the lungs; and this can be done by avoiding such meats and drinks as have any striking flavours in their composition. The skin is also an outlet for any excess of animal heat, as well as for the heat which is being constantly generated in the body by the union of the gases. When the heat of the surface is nearly of the temperature of the interior, the oleine of the fat exudes upon the surface in quantity, besides ammonia, and the skin is thus rendered elastic, as well as defensive against the heat which would otherwise be absorbed, and by which the system would become incapable of existence.

There is no muscularity in the skin, although it expands and contracts according to the internal or external forces which happen to act upon the system, such movements being mechanically produced by the actions of the muscles beneath, to which the skin is attached by the intervening

cellular tissue, blood-vessels, and nerves. The skin is highly vascular throughout its inner surface, more so than its outer, by which its vitality is amply secured. On its outer surface the nerves of sensation terminate in the form of papillæ, and these are covered by the epidermis which gives them a direct protection from the action of the atmosphere. Running between the inner and outer surfaces are glandular sacs encompassed by capillaries, and ending in excretory ducts through which the perspiration is conducted. Within the same boundaries are situate the absorbents which accompany the excretory ducts, but in a contrary direction.

Thus we have before us the fact of the skin containing within its boundaries, blood-vessels and nerves for its nutriment and sensation, whilst it has absorbent and excretory tubes for the necessities of the entire structure.

If any irritating applications are made to the skin, by which the absorbent or excretory actions are suppressed, the system will suffer more or less in consequence until such time as they can be restored to their accustomed duties.

All parts of this external integument of the body should be free in all its natural operations, as the skin not only exists as an external coating to the body, but as giving a passage to the extraneous matter which is so often intro-

duced either by diet, inspiration, or to the peculiar influences to which the surface of the body is occasionally submitted.

The skin is thus a self-acting regulator by which man's comforts are governed, and his life preserved. The constant variations of atmospheric temperature, as well as the various movements which the state of our existence demands of us to make, keep the skin in a state of great activity, and its contractions and dilatations invariably respond, when in a healthy condition, to these operations.

The insensible perspiration which is constantly going on in it, not only serves to keep the whole system in a state of equilibrium, but to have the exhaling vessels in a state of readiness for the more active operations, whenever they are required; thus if a warm day suddenly succeed a cold one, a proportionate expansion of our solids and liquids rapidly ensues, our bodies are relieved by the outlet which is given to the excretory ducts, and so on we go in comparative security as long as this tubular machinery performs its healthy functions. When cold, on the contrary, acts upon the body so as to produce a sudden condensation of all those parts, a constriction of the porous structure immediately follows, out of which arise headache, apoplectic fullness, difficulty of breathing, and other oppres-

sive changes, which often produce the destruction of our existence. The nerves of sensation, which are so freely distributed throughout the skin, regulate and modify all atmospheric and mechanical impressions before they reach the higher nervous powers within; it is therefore through this intermediate system of communication that this department of the faculties of sensation is made to receive these outward actions with comparative ease, which if otherwise constituted would create such shocks upon the system as would by repetition destroy those powers which are now so admirably preserved.

All derangements of the skin should be carefully watched, whether they arise from internal, mechanical, or atmospheric causes, and particularly those which affect its excretory operations, they being a part of the natural actions of the body, without the due performance of which its healthy functions cannot be perfect.

The rectum gives exit to that portion of the food which could not be applied to any further purposes of nutrition, to the gases, namely, the carbon and nitrogen which are unconsumed in the various chemical combinations which are necessary in the animal economy, and to many of the phosphates and other earthy salts.

About seventy-five per cent. of our solid food are consumed for the wear and tear of the

system, and about nine per cent. of our liquids for the same purpose—subject however to some differences for necessary labour, exercise, seasons, age, and rank of life, without altering the general principles of the proportions which have been just given.

The food which is necessary for perfect sustenance under the ordinary circumstances of life is but little, and fortunately for mankind that little is easily acquired. The following table, which has been acted upon for years, will show the quantities, kinds, and qualities of food which constitute the daily sustenance of a strong and healthy man, now at middle life, who takes several hours' active exercise during the day, and who has not been ill for thirty-eight years of his life from any constitutional ailment whatever; the table, however, does not extend to all that time; but it does to at least fifteen years of that portion, with rarely any exception occurring which could make a difference in the positions which are here intended to be established.

MORNING, EIGHT O'CLOCK.

Breakfast.

• Best wheaten bread	4 oz.
Butter (fresh)	$\frac{1}{2}$..
Infusion of tea	10 ..
London milk	2 ..
Refined sugar	$\frac{1}{4}$..

EVENING, FIVE.

Dinner.

Boiled potatoes	2 oz.
Bread	2 ..
Meat, under-done	6 ..
Infusion of malt and hops*	16 ..

* In summer water is taken instead of beer, with one glass of wine.

EVENING, SIX.		NIGHT, TEN.	
Infusion of tea10 oz.	Water 6 oz.
Milk 2 ..	Proof spirit.....	2 ..
Refined sugar ¼..	Refined sugar ¼..

A lady who adopted the above table, with the exception of using water instead of beer, all the year round, and never using wines or spirits, has been in the enjoyment of the most perfect health and condition ever since, which is now some years. The breakfast is at all times the same; the dinner sometimes has an addition of fish, and other vegetables, but such as not to materially alter either the weight or quantity consumed, or the quality of the meal.

All flesh-meats being similar in their constituent principles, no account has been given of the various kinds which are occasionally used; but the ones almost daily used are beef and mutton; whether or not, the quantity consumed seldom or never exceeds six ounces; and the fæcal matter excreted from the whole is about three ounces per diem, which is principally derived from the animal food portion of the diet.

A little boy had been kept for three years upon diet arranged according to the following table, the proportions being upon a gradual increase in the quantity of each kind up to the present time:

Morning—Best wheaten bread	2 oz.
London milk	6 oz.
Noon—Boiled potatoes,	3 oz.
Fresh butter,	$\frac{1}{2}$ oz.
London milk,	6 oz.
Evening—Bread,	2 oz.
Milk,	6 oz.

From the above table of simple dietetic materials, the moral and physical powers of the child are developed in the highest perfection. From them are taken all the elements which go to the formation of bone—the chondrine of bones—capsules of joints, internal and external ligaments, tendons, cellular membranes, coats of vessels, nervous matter, muscular matter, glandular and fatty structures, skin, nails, hair, the various liquids of the body; and everything else which can be said to complete the composition of the human structure, is likewise produced from the same sources.

It would appear from this that but a small quantity of the plainest food is sufficient for the perfect growth of the body, and for the complete preservation of health and activity, as well as for the development of the intellectual functions. It does not require a diet taken from any sublime systems of cookery to make either a philosopher or a warrior. The highest walks of philosophical or mathematical research may be travelled over by a mind emanating from a body which is being nur-

tured by almost the simplest food of nature, while the physical powers of man may be preserved in perfection upon the same simple productions. Without taking from the rich that which they could not miss, or impairing the rights of any man, the immense masses of the people of this country who are said to be in a starving condition, might have no dietetic wants, the over-productions of this country only requiring a better distribution amply to supply them. Whenever starvation and want pervade the masses of our fellow-creatures, it is not by Providence, but by his fellow-man, that such miseries are produced. Rank, power, and the distinctive classes, may be fairly preserved, without inflicting upon the immense masses beneath such awful and unnecessary calamities as those of hunger and starvation. As this part of the subject belongs more to political economy than to medicine, I shall leave it, hoping that the time may soon come when the cries of hunger among any portion of our population will be numbered among misfortunes which have passed never to return.

From the above diet-table, amounting to seven ounces and a half of light solids, the *fæcula* excreted amounts to one ounce and a half, leaving behind the remainder, or seventy-five per cent., for the entire structural development of the body, besides the carbon and nitrogen which are given off with them as excretory gases. It will be seen

here that the fæcal matter excreted by the child and the adult is about the same—that is, twenty-five per cent. upon the solid food which is taken, such quantities being in both instances necessary to keep the bowels in a condition to act upon all necessary occasions without pain or inconvenience. In Liebig's tables, taken from the Prussian soldier, he makes out the fæcal excretion to be about five ounces and a half per diem : this variation, however, does not affect the general principles of the income and expenditure of the body, when the circumstances of age, exercise, and the other points before mentioned, are considered.

The growth of the foetus in utero is at the rate of one pound in weight per month. From infancy to puberty, the system accumulates at the rate of half a pound per month ; and when puberty is complete, the nutrition of the food goes to supply the various expenditures of the system which are peculiar to that state of animal existence. In old age the appetite diminishes, the system being more easily kept up ; therefore the excretions are diminished accordingly. Age, constitution, food, climate, and other circumstances, will affect the nature and character of the excretions. Their exit from the body should be free, and without pain or looseness, and at the same time show the appearance of a due admixture of the hepatic secretions.

Much has been said with regard to the frequency of exit among the females of the higher classes. An eminent writer holds that health and spirits may coexist with an excretory action twice a week, once a week, once a fortnight, or even longer: however this may be, few instances could be adduced where such irregularities could go on for any length of time with safety, or without producing great constitutional derangement, which would finally lead to the production of chronic disease, or to those painful maladies which are known to affect the lower intestine.

The frequent use of purgative medicine or lavements destroys the natural action of the bowels by the liquidity which is given to the fæcal matter in the first instance; and in the second, by depriving the sphincter and other muscles of the natural actions. To bring back the natural functions of the bowels, when they have been impaired, must be done by dietetic management only; and should the other systems be resorted to in lieu of the latter, instead of restoring the healthy actions, a dangerous aggravation of the mischief is the certain result.

Infants, when at the breast, have their excrement derived from the caseine of the milk, and they frequently excrete the milk coagulated, when more has been taken than the stomach can digest. The excretions of children are derived from the

gluten, starch, and sugar of bread, from the starch and sugar of potato, and from the caseine of animal milk.

The excretions of adults, in the same manner, are derived from bread, potatoes, milk, and other similar foods, and from animal foods—the tendons, cartilages, membranes, and the meat itself, when taken in unnecessary quantities. Excretion takes place in the ratio of the retention of food in the alimentary apparatus, and according to the kind and quantity consumed.

This excretory outlet should be well preserved from derangement or misrule of any kind, and nothing allowed to interfere with its actions, except when diverted from those operations which belong to it in its natural capacity.

The urine consists principally of water, which enters the stomach as food and drink, after which it is taken into the circulation, where it becomes impregnated with the oxygen of inspiration, together with the various gases or vapours which are mixed or mechanically suspended in the atmosphere with which we might be surrounded ; from thence it is transmitted to the kidneys for secretion into the bladder, from which it is expelled as necessity dictates.

Water, when employed in its natural state for our internal use, differs in the nature and character of its constituents to a remarkable extent, and

as such must produce a great variety in the composition of urinary deposits, as well as in the structure and composition of the calculi which form within the bladder itself.

Several of such waters contain free oxygen, carbonic acid, sulphuretted hydrogen, and nitrogen; also carbonate of soda, lime, magnesia, and iron; sulphates of soda, lime, magnesia, and iron; muriates of soda, lime, magnesia, and potass; silica, lithia, strontia, barytes, alumina, resins, besides many incidental impregnations. The dietary and exhilarating liquids which are used, as milk—infusions of tea, coffee, chocolate—animal broths, beers, wines, spirits, with some others, also influence the nature and character of urinary deposits, or calculary formations.

The water which is used for their solution saturates itself with the various principles which compose the several ingredients before mentioned, and when they are taken into the system, are in their turn discharged from their solution, and then disposed of by the system through some or other of the excretory outlets. Sometimes water will hold much of the same materials in a state of mechanical suspension; therefore such materials are in the same ratio accumulated in the system, and add in proportion to the excretory discharges.

The urine exhales a violet smell when turpentine or the volatile oils are admitted through the

inspiratory process. The air of a room impregnated with the fragrant principles of the musk and other plants produces similar effects.

Large quantities of the ammoniacal gases are taken in by the inspiratory process; and after having traversed through the circulatory system, are exhaled by the skin, as well as passed in the urine with little alteration, or combined with other gases, and with them form those ammoniacal salts which often appear in the urinary excretions.

Large quantities of carbon are known to be constantly floating in a London atmosphere; and while it is the business of the system to expire carbon and oxygen, the same system is constantly taking in carbon which is as often expelled through some or other of the excretory channels, and particularly in the urine under some or other of the ammoniacal combinations.

As this air which we breathe is impregnated with foreign gases, so shall the urine which is passed be impregnated with foreign principles.

Many of the foods have a direct tendency to impregnate the urine with their peculiar qualities. Asparagus has a most remarkable effect in this way as it invariably produces in the urine an odour peculiar to asparagus, and which is readily recognized by those who have been in the habit themselves of frequently using that vegetable.

— The urine acquires the smell of animal matter when fresh juicy meats constitute the principal meal of the individual.

All foods, both liquid and solid, more or less influence the nature and character of the urine in its chemical composition. With regard to an atmosphere charged with deleterious materials, the system may for a time resist their effects, after which irritative actions, or increased circulation are excited, which will terminate in organic changes which must eventually produce the most destructive effects.

It is in a state of health that urinary calculi are often formed. This fact has been frequently illustrated in many animals which have been killed for human food, in whose bladders calculi were found. Up to the time of their being killed their health was good, and quite equal to animals of the same litter, fed upon the same food, and killed at the same time for similar purposes, and in whose bladders no calculi were found. Beasts fed upon the same pastures from the beginning, when killed will exhibit in themselves similar illustrations.

The formation of calculi in the bladder under such circumstances would be difficult to explain, unless such could be attributed to the mere formation of the secreting or excreting organs themselves. Non-assimilable bodies are being

constantly introduced into the system, and as often excreted without leaving behind any of the formations resembling the non-assimilating materials. The materials which enter into the composition of urinary calculi are frequently and largely introduced into the system, and as often expelled without any formation resulting from such circumstances, unless when the secreting or excreting powers fail in the performance of their normal functions, either from inflammatory disease, mechanical injuries, or the natural decay of the vital organism.

The system may remain for years without being impaired after a calculus is known or suspected to be in the bladder, and it is not until it has acquired weight and size that local disturbance is set up,—then general derangement succeeds, which continues to increase until the offending cause be removed either by internal treatment, or by surgical operation.

Several waters contain many of the elements of urinary deposits, as well as of urinary calculi. The albuminous portion of our food also contains many of the same elements, and in middle life when the mal-assimilation of our food arises from over-feeding, want of exercise, or improper foods or drinks, or from constitutional changes; these elements, instead of being passed through the usual excretory channels, produce gout, rheuma-

tism, glandular enlargements, and calculous deposits.

The caleuli found in the bladder are made up of constituents slightly differing from each other in their composition and character, which difference may arise from the peculiarities of the system adding a little more to, or taking a little less from, any one of the constituents out of which the various caleuli are formed.

The waters, wines, beers, and foods of different districts, and particularly those of them which are largely used as liquids for our internal wants or purposes, and which come under the head of prepared or manufactured beverages, differ from each other most materially in the elements which compose them; therefore we cannot wonder at the differences in the structure and composition of the caleuli when such circumstances are considered. The following are the varieties of caleuli given by Dr. Prout in his very able work upon Stomach and Renal Diseases.

COLOURS.	VARIETIES.
Brown red.	Uric acid.
Clay colour.	Urate of ammonia.
Deep brown.	Oxalate of lime (mulberry).
Yellow white.	Cystic oxyde.
Pale brown.	Phosphate of lime (bone earth).
Nearly white.	Phosphate of magnesia and ammonia (triple phosphate).
Quite white.	Phosphate of magnesia, of ammonia, and of lime (fusible calculus).

COLOURS.	VARIETIES.
Ale colour.	Alternating calculus.
White.	Carbonate of lime.
Flesh colour.	Xanthic oxyde.
Amber and wax.	Fribrinous calculus.
Whitish.	Prostatic calculus.

These varieties do not materially differ from each other in their elementary composition, for a little more or less added to, or taken from, will give any of them: thus the urate of ammonia by an increased supply of oxygen might be converted into oxalate of lime: again, an atom of urea is half more than an atom of sugar—the sugar which we daily use might by adding azote and taking away oxygen be converted into uric acid, and with very little further alteration in the proportions into urea; change of diet, and of air, constitutional derangements, fevers, will often produce many of the transitions from sugar to urea, &c. The varieties being contingent upon the circumstances before mentioned, they nevertheless may be brought under one head as regards the means by which they may be taken from the living body. Again, alcohol in the system, by the addition of oxygen, is converted into carbonic acid and water,—fats the same; and by the converse operations, carbonic acid and water might be converted into an alcoholic solution by the abstraction of oxygen.

During life none of the varieties can be ascer-

tained before operation, so that it would be impossible to fit a solvent treatment to each specific calculus, if such power were known to be at our disposal for such occasions.

Remedies may be found to resolve calculi into their original elements out of the bladder, while the same remedies may be inadmissible into the system from the nature of their composition; or if admissible, become powerless in their passage through the various secreting organs before they reach the surface of the calculi as they are situated in the bladder. Manual operation appears to be the most ready and effective remedy for the removal of calculi from the bladder; and without operation, the introduction of about fifty or more ounces of pure water, or distilled water charged with carbonic acid, by reaching the bladder as carbonic acid, would have the effect of holding many of the earthy bases in solution; or dissolving the calculi of which they are composed, to pass every day through the system, a similar quantity of water is the next best remedy for the resolution of urinary calculi, or the solution of the ammoniacal deposits which are seen upon the cooling of the urine after it had passed from the body.

The urine undergoes vast alterations by age. Whilst young, it is a light pale colour, without much smell; and in old age it occasionally becomes fetid, because the acquired habits of old

men are generally favorable to the production of abnormal secretions.

Urinary deposits occur in all ages and under all circumstances; and when they do occur, are far from being criteria of organic disease. I have seen the urate of ammonia, and other deposits, in healthy young persons, who did not complain of any illness whatever, nor did their appearance display any. I have seen the same deposits in those who were suffering from gout and rheumatism, from typhus or other fevers, or from dyspepsia or any general constitutional disturbance. There is no specific treatment for such cases; therefore they must be remedied according to the occasions which produce them.

The legitimate foods and drinks seldom alter the urine from its normal character and composition; it is in consequence of a congenital or acquired malformation of the secreting organs, or of some of the various constitutional derangements to which we are subject, that such changes are produced. The rich feedings and accompanying wines of the wealthy gourmand—the coarse gluttony of the healthy farmer or ploughman, the thrifty mechanic or successful tradesman—the gross depravity and squalid habits or poverty of the masses who inhabit our large towns and cities, will ever create distinctions in the causes as well as in the treatment

of every form of disease affecting the urinary organs. It is on persons of the latter class that most writers upon the diseases of the urinary organs found their theories—it is from the workhouses, dispensaries, and hospitals of the metropolis, where such patients abound, that instructions come, or directions are given, not only upon the urinary but upon all other diseases, without accompanying the cases with the state of means, occupation, customary habits, of the several individuals who happen to be the subject of them.

Liebig says, “the nitrogen of the food, united with the unabsorbed carbon, pass off by the urine and solid feculæ;” and thus we have carbon and nitrogen in combination,—elements when united in two equivalents of carbon, $= 12$; and one equivalent of azote $= 14 = 26$, form a poison the most fearfully rapid in its deadly effects of any which can be found in our toxicological system. Such terrific elements are, however, so directed and managed by the hidden powers of the system, that in it they exist for a time and are then discharged, without having in the least degree impaired that system wherein they were eliminated.

In typhus fever, the same author says, “the red colour of the urine is in consequence of its being rich in carbon.”

From this it might be inferred that the activity

of the inspiratory functions being diminished, the carbon of the system, instead of being largely consumed by the respiratory process, remains in it to be eventually discharged through the urinary and other excretory courses. The same change would also occur in all other illnesses which tend to impede the respiratory actions.

It may be observed that from the commencement of typhus or of any other fever, but more particularly of the former, that the whole system becomes rapidly altered; the usual exercise, meats and drinks, are of necessity immediately discontinued, all the secretions consequently assume new appearances, the bodily and intellectual powers are totally subdued, a rapid absorption of the fatty, fibrous, albuminous, and other tissues, produce great emaciation, at the same time exhibiting their effects upon the nervous powers by almost destroying the intellectual functions, and towards the end the urine is not only rich in carbon, but in hydrogen as carburetted hydrogen, by which the urine becomes fetid, at the same time showing the products from the metamorphosed tissues or the decomposing state of the system in the latter stages of that dangerous disease, the continuance of which rapidly brings on the case to a fatal termination.

There can be no doubt that to treat typhus fever with any hope of success, the cause of the

first alteration in the secretions must be well considered, that an accurate knowledge of the elements which compose the urine, and other excretory products which occur in the course of the disease, will best point out the treatment which should be adopted and with the best expectation of success, provided that a timely application be made, and that no organic disease had been in existence previous to the setting in of the attack.

A very able writer says, that it is the duty of those who direct the medical institution of the country, to compel every one who is to practise medicine and surgery to be thoroughly conversant in chemical science, for they will otherwise commit the most dangerous blunders in calculous and other diseases.

The bile may be said to be a secondary excretory product, and is secreted in the liver from the blood which is carried by the vena portæ, which is formed by the union of the veins of the spleen, pancreas, gall-bladder, stomach, and intestines. In the liver the vena portæ divides and subdivides into very minute branches, which end in the formation of another set of vessels which are specially biliary, as they contain the bile which goes to the duodenum and into the gall-bladder. The saline parts of the bile so passed into the intestines assist in the solution of the

fatty portion of our foods previous to its assimilation, after which the residue becomes a portion of the fecal matter which is excreted from the intestinal canal. The carbon of the various tissues, as they are metamorphosed, is carried in the blood of the vena portæ to the liver, where it partly enters into the composition of bile, while another portion unites with hydrogen and forms fat, which is deposited throughout the structure of the liver, not in that whitish yellow granulated form as it is seen in the other tissues of the body, but in that of oil. It is out of this oily substance that the cholesterine which is often found in the gall-bladder is formed, and which is supposed to arise from its mal-assimilation.

These formations may be in the course of accumulation for years without the fact being known either to the patient or to the medical practitioner, until the bile becomes intercepted in its passage to the duodenum by some of them being lodged there. The removal of such obstructions, notwithstanding their being known to exist, cannot be effected by any mechanical operations, therefore we must look to the theories of Liebig for a remedy for their absorption.

If the fatty calculi are formed out of any congenital imperfection in the secreting organs themselves, little hope can be expected from putting

the theory of Liebig into operation ; but if they are formed from a general accumulation of fat in the system, and more especially about the liver, and afterwards by a mal-assimilation, then a pure air having an abundance of oxygen—a cold clear air of a northern region, active exercise, moderate diet, may resolve the concretions with the rest of the carbon and hydrogen deposits, and restore the individual, however cumbrous, to his natural and healthy proportions.

The bile which flows into the duodenum is different from the bile which is found in the gall-bladder. The one is of a faint yellow colour, and without smell, and might be termed the assimilating bile ; while the other is of a yellow colour, and is more properly intended for excretory purposes.

The constituents of gall-stones, as I before observed, are carbon and hydrogen, which are the known constituents of fats, oils, and wax ; and like them are soluble in turpentine, alcohol, and alkalies ; besides having most of the other properties which belong to such substances. I have often found between forty and fifty of them, of various sizes, in the gall-bladders of persons of all ages, and in young persons who had died from causes not at all relating to biliary disease. The method of absorbing them by oxygen I have before described.

PULMONARY DISEASE.

BEFORE entering more immediately upon the subject of lung disease generally, it would be as well to put in a prominent position, and in a concentrated form, the principles which are intended to be advocated respecting it in the remainder of this work, and which are as follows :

Firstly. That nature intended as a general rule, that every human being when entering this world should possess a constitution healthy in all its parts.

Secondly. That the exceptions to this rule are but comparatively few, and that the majority of the exceptions are those wherein the germs of lung disease exist ab origine.

Thirdly. That the improper application of nutrition, excessive exercise, colds, or any habits or abuses which tend to attenuate the system, or the incidental incursion of many of the inflammatory diseases will frequently develop pulmonary disease, and in every stage of human existence.

Fourthly. That thousands of those who die of pulmonary consumption might be readily saved if the proper principles of treatment were more generally known and opportunely applied, although in stages where recovery is considered almost impossible according to many of the theories which have existed, and do now exist with regard to this formidable disease.

Fifthly. That in certain stages of lung disease in which medicines are administered, the mischief which is thereby done is often incomparably greater than if such cases had been abandoned to nature; for under the latter course the inherent powers of the constitution would occasionally avert the threatened mischief, while the former one precludes even the remotest chance of recovery.

The pulmonary apparatus consists of the windpipe and the lungs, which latter are composed of air-cells, vessels, nerves, glands, tubercles, absorbents, and parenchyma, which connects the whole together. The windpipe divides itself into larynx and trachea, and then between the second and third dorsal vertebra the trachea divides itself into two tubes called bronchi, each one going to its respective lung, where it subdivides itself, terminating by several minute branches, into small dilatations which are called air-cells

Each of these parts have diseases peculiar to them, and the disease which may happen to affect any one of them comes under the head of lung disease. Any disease under which the body consumes is a consumptive disease; therefore the term consumption may be fairly applied to any disease which has the effect of wasting the body and destroying life. By conventional forms, however, consumption is settled to be a disease in the lungs under which the body gradually attenuates until life is destroyed, unless such course be arrested either by the powers of nature, or by those powers which come under the various ranges of medical science.

The several tissues making up the lungs will be treated of separately, with the intention of showing the various forms of lung disease which comprise consumption, and which as a matter of course require various forms of treatment.

Laryngeal Inflammation.

LARYNX. The larynx is the superior part or beginning of the pulmonary air-tubes, and is composed of cartilages and lined with a mucous membrane. It is in this part that the organs of voice and sound are contained; therefore when a cold is attended with a loss of voice, it is an

indication of where the mischief is situate. The mucous membrane is specially the subject of inflammation, which, if not immediately subdued, will either lead to suffocation and death, or chronic ulceration: the latter condition is termed *laryngeal consumption*, which more frequently than otherwise produces fatal results.

The diseases of the larynx arise almost invariably from cold, and generally from acute inflammation, which may sometimes end in resolution, immediate suffocation, chronic thickening, and then chronic ulceration, of which I have just now spoken.

TREATMENT. In treating diseases of the larynx which are always formidable from the before-mentioned circumstances, the age and strength of the patient and the nature of the attack must determine the remedies.

Laryngeal inflammation is liable to come on soon after birth, at which period it seldom proves dangerous; but when it occurs about the age of eight months it is to be looked upon with much suspicion. Cough, wheezing, embarrassed respiration, quick pulse, dry skin, flushed countenance, and loss of appetite, are the attendant characters of the attack. All these symptoms are modified or aggravated according to the state of the system at the commencement of the disease: if it be in a

favorable condition and free from constitutional irritation, the case will readily yield to the ordinary methods of treatment; but if otherwise, the most immediate and active treatment will be necessary to cut off the danger and to get rid of the attack.

Warm baths under thermometric regulations, (as without such there is always a risk of inefficiency or disappointment, the hand being ever an uncertain measure of temperature,) emetics, castor oil, rhubarb, scammony, or jalap purgatives, reduced diet, will subdue the most threatening attacks, if resorted to within any reasonable time after their commencement.

Should the patient be at the breast, the nurse must be particularly careful in everything she uses for food and drink; she must avoid every thing salt and seasoned, such as salt meats, broths, soups, or made dishes, and all vinous or sour acidulated beverages; saline purgatives are also objectionable, as they impregnate the milk and thereby keep up constitutional irritation. In all other ages the same objects with regard to food and drink should be particularly regarded.

Warm baths, emetics, and purgatives are immediate in their effects, and so also is bloodletting by the lancet where it can be done with safety and seasonably. Bloodletting by leeches, mustard-poultices, and blisters are mediate, teas-

ing, and sometimes dangerous remedies, and particularly the two latter; besides leading to a great loss of time if depended upon in the beginning of the attack. Enemata are useless in every instance as an important or useful remedy, their action being limited to about eight inches of the lower bowel by which the constitution receives no impressive influence.

When, by unskilful treatment, or by negligence on the part of the patient or friends, the mucous membrane of the larynx assumes the chronic form of disease and becomes thickened, the mercurial or iodine preparations are then employed for the absorption of the coagulated lymph which is the cause of the thickening. Both these remedies are always dangerous in their application in the case of infants and children, in consequence of the difficulty of measuring with them the quantities which would be necessary to effect given purposes.

In chronic inflammation I have experienced that mercury does more harm than good, however skilfully its administration may be conducted; and in most careful hands I have seen mercurial disease suddenly appear, and frequently carry off the little patients under far more distressing circumstances than if they were allowed to go on without the application of any medical treatment whatever. The application of the iodine treat-

ment is subject to similar objections for other reasons which shall be given hereafter.

Hooping-cough is the result of another form of laryngeal inflammation, and should be treated in every respect upon the same principles which have just been laid down for ordinary inflammation of the larynx. This is a disease which must be gone through at one time or other by infants and children. It is said to have been seen in elderly persons, but in my long experience and extensive opportunities I have not seen any cases except in subjects who were generally under the age of puberty. This disease often sets in under such mild forms, that its first recognition is by a peculiar sound or hoop. This sound takes place during each succeeding inspiration after the expenditure of each fit of the cough. Every old person or nurse knows what it is when under these appearances; but such persons do not always know what to do with it, yet they continually undertake its management.

When this change has been determined in the larynx, the case may remain undeveloped for a considerable time until a severe attack of cold fully discloses its existence; and should the system be at this time in an irritable condition, it will show itself with the utmost violence and danger to the patient. It is then that long and suffocating fits of coughing threaten almost im-

mediate death to the little sufferer—cough after cough, and hoop after hoop succeed each other, under the most painful and difficult struggles, while the eyes project from their sockets and implore for assistance until the irritated membrane is relieved by a discharge of mucus from its surface, and a profuse perspiration covers the whole surface of the body. In some cases blood is discharged either from the ears or nose in consequence of the plethora which previously existed in the vessels of the brain. The fit being now terminated, great fatigue and exhaustion are observed to exist, and it is some time before the patient regains the strength and spirits which he had before its commencement.

The importance of a free space in the laryngeal opening for respiratory purposes is too palpable to admit of discussion. Upon the caliber of that opening and the irritability of the lining membrane of that cavity, both of which conditions are influenced by the state of the system, depends the moderation or violence of whooping-cough. When the opening is very much narrowed by the inflammatory changes in the larynx, the ingress of air must be slow, and therefore insufficient for the wants of the system. This is shown by the congestion which follows in the vessels of the brain, and in the livid countenance.

From these consequences alone sudden death

never happens; but when it is accompanied with acute inflammation of the mucous membrane, then the rush of cold air over the heated irritated surface will produce a convulsive strangulating cough which occasionally puts an end to the suffering of the little patient.

When we thoroughly know what the nature and character of cases are, it would seem an easy thing to manage them; but this is not always so, more particularly when we meet with a depraved condition of the system in a subject suffering under hooping-cough. We, however, can do an immense deal by the proper adaptation of remedies even in constitutions where every thing appears to be against us. There are some children having a tendency to glandular irritation or disease, and these sometimes cannot be managed under any circumstances, and by slow degrees the body wastes under a continuance of the cough,—water is effused into the ventricles, which ultimately carries off the patient, or leaves him in a state of idiotic existence from which he never recovers.

The dietetic management of hooping-cough should be carefully attended to, for such attention is equally as necessary as medical treatment. If the patient be at the breast, the precautions before recommended should be observed by the nurse. Should the patient have been weaned,

mild unirritating diet should form the basis of its nourishment. Bread should have its salt or alum washed out with warm water before it is used as a diet for children when labouring under any form of disease, especially those of the pulmonary apparatus. The bread treated in this way and mixed with fresh creamy milk, derived from a grass-fed animal, will make two wholesome meals in the course of twenty-four hours.

The other meal might consist of a floury potato rubbed fine with a little fresh butter, and with pure milk or milk and water to drink with it, and a nutritive and mild repast will be the result. With due attention to these principles, and the inhalation of mild and uncontaminated air, we may fairly hope that the case will terminate according to the desires of the fondest parents and the anxious and responsible medical practitioner.

CROUP. The next form of inflammation of the mucous membrane of the respiratory tubes is called croup. This disease appears under two heads, namely, inflammatory and spasmodic. An attack of the first form falls upon the larynx and trachea, and sometimes upon the bronchi, and is one of the most desperate and rapid seizures which can happen; for within the short space of a few hours, some of the cases become doubt-

ful, if not hopeless. Its course is so rapid, that it quite outruns the remedies which are resorted to by the most able and discriminating practitioners for its suppression.

Any sudden difficulty of breathing occurring with infants and children should not be looked upon lightly; on the contrary, they should be considered with distrust, and a clever practical man should be instantly procured, to whom the fortune of the case should be absolutely submitted.

A short cough and wheezing suddenly appearing, hot and dry skin, lividity of the lips and countenance, frequent and short breathing, a peculiar shrill sound at every inspiration and expiration, a small quick pulse beating from one hundred and forty to one hundred and seventy a minute distinguish croupy inflammation. These symptoms gradually increase, until death puts an end to the scene in the short space of twenty-four hours, sometimes extending to a day or two longer.

When the medical practitioner first sees the case, he can have no difficulty whatever about its nature and character; neither can he have upon the treatment which he should pursue on the occasion. His principal duty is to execute what he has to do as quickly and as vigorously as possible, without any temporising, or without

fear and trembling. If there be nothing done, the case is surely lost—if there be only trifling, it is subject to a similar event; therefore the boldest possible attack which can be made must be without delay or vacillation. More mischief cannot be done by the application of the strongest remedial measures than can be effected by the progress of the disease itself, consequently how plain it is that the practitioner should be prompt, bold, and decisive in his investment of so dangerous a case as that of inflammatory croup.

Warm baths, the temperature being governed by the thermometer, tartarized antimony in distilled water, castor oil, rhubarb, jalap or scammony purgatives, bloodletting with the lancet where practicable, can be the only efficient remedies to meet a case so immediate and desperate in its consequences.

Tracheotomy is not often successful in consequence of the inflammation most frequently extending below the opening, and into the bronchial tubes; yet it is a remedy that can do no harm if carefully performed. Mustard poultices, leeches, blisters, enemata, mercury, are now but conventional remedies, or at least but secondary, if not absolutely injurious, and more particularly if not in the hands of experienced practitioners.

The great danger of inflammatory croup lies

in the production of a false membrane which lines the whole of the larynx and trachea, and which sometimes extends to the bronchial tubes. When the membrane is thrown off, and not coughed up, it threatens if not positively produces suffocation, together with the muco-purulent secretion which is contained in the whole of these canals. But if the false membrane and mucous secretion are expectorated together so as to allow of the distribution of a reasonable proportion of air to the pulmonary cavities, and if this be combined with a cool moist skin, moderate fever, and a general freedom in the action of the respiratory organs, and little or no distress about the countenance, and a natural action of the bowels, we may reasonably hope for a favorable termination of this formidable case.

CROUP (SPASMODIC). This disease does not belong to those of the mucous membranes; but as it appears like inflammatory croup in some of its characters, I am bound to introduce it here for the purpose of contrasting it with that disease, if not for the great danger which sometimes occurs in this form of croupy respiration.

Female infants more particularly, and females just before puberty, are the subjects of spasmodic croup. The seizure comes on very suddenly, and

the fits last for a considerable time. It has no inflammatory action, neither has it any mucous secretion; it therefore appears as a true instance of spasmodic disease. I have seen such cases in the subjects before described, and who appeared to have nothing the matter with them before the commencement of the attack. The fit comes on with violent spasmodic convulsions which last for a considerable time, during which the hands are clenched, the muscles rigid, and a livid swollen appearance marks the countenance. It sometimes happens that a fatal spasm puts an end to the case, to the surprise and dismay of the lookers on, as well as of the medical practitioner himself. When this occurs, and that the tongue was clean just before, and the appetite good, and nothing observable from teething, I have no doubt that it was brought on by a slight effusion into the ventricles, and the post mortems which I made in such cases justified my opinion.

Teething is often supposed to be the cause of this affection in young children, although not in girls before puberty. This I should suppose quite probable, when it is considered that branches from the fifth pair of cerebral nerves are distributed to them; and under constitutional derangement, teething becomes a painful process, and through these branches a reaction upon the brain

would easily lead to all the spasmodic convulsions which are observable in this form of croup, such being the excitability of the nervous system.

In children where recovery happens, it may be fairly concluded that the fits did not arise from water in the ventricles, but from a bad condition of the digestive functions combined with the operation of teething: and it will be found upon inquiry, that loss of appetite, irregularity in the action of the bowels and in the condition of the *fæculæ*, depression of spirits, great peevishness, and a frequent desire to be nursed or carried about, will be found to have existed long before the spasmodic attack presented itself.

When the fit goes off, in a short time the little patient appears as if nothing had happened, by the great cheerfulness which it exhibits.

The time for the application of remedial measures is during the interval of the fits; and when these are seen to result from derangement of the digestive functions, with painful teething, and the little subject is of a plethoric habit, warm baths, purgatives, reduced diet, with proper attention to its quality for digestion, will soon subdue these disagreeable if not dangerous appearances. If the tongue be clean and the appetite good, the bowels regular, and there be no appearance of teething, we may fairly presume that effusion is threatened, if it do not

actually exist. In this case the mercurial treatment, very carefully conducted, low diet, and keeping the head uncovered, will be the most suitable treatment which could be adopted. But if the patient be wasted and his state indicate mesenteric disease, or he be attenuated from any other cause, then such treatment would be decidedly injurious, and we should be obliged to look to nutritious food and tonic medicine as the principal remedies for counteracting this form of constitutional mischief.

Most medical practitioners, and more particularly those of the old school, are very apt to treat the diseases of infants and children by imitation or routine, and I might say the same of every kind of case coming before them. The results arising from this system of practice are often alarming, and far better would it be in many of such cases if they were under no treatment whatever.

Thus if the countenance be flushed, and the hand discover the integuments of the cranium hot and burning; if the pulse be quick, and the skin hot and dry, the application of cold over the surface of the scalp would be one of the most invaluable remedies which could be used under such circumstances; but if the countenance be pale, pulse regular or slow, skin moist and cool, heat over the scalp moderate, then

such an application would be not only injurious, but destructive to the welfare of the little patient. In numberless instances have I seen the destructive effects of this application of cold under the latter circumstances, which facts show that no discrimination whatever was exercised by the medical attendant between these two opposite states of the cerebral system. Mercurial treatment under such circumstances would also be absolutely injurious. The treatment of any case with mercury requires the greatest caution, although that mineral is upon some occasions one of the most influential remedies which we have at our command; yet its application in the diseases of infants and children, more frequently than otherwise, leads to the most dreadful consequences.

When I have found spasmodic croup to exist without any assignable cause, or from a defective condition of the branches of the recurrent nerve going to the muscles of the larynx, I have tried the *infusion of tobacco* as recommended by Sir H. Marsh, and I found it particularly useful, if not successful. But I must here say that I had not a sufficient number of such cases under my care so as to be able to stamp such a remedy as a specific for them.

Spasmodic croup in young females, as I before observed, attacks them about the age of puberty;

therefore it must be supposed to have some connexion with the establishment or the irregularities of the menstrual functions.

The older and some of the more modern writers, as it appears to me, have had very vague ideas with respect to the classification of diseases. Their nosological distinctions were numerous; and thus did they create a set of diseases which had no real existence, and in this manner did they make difficulties and confusion which not only deceived themselves, but bewildered those who were to succeed them in the practice of the healing art. The case in question, as well as a great many other cases, require correction in nosological arrangement, as in the medical and other treatment; which, if properly done, would greatly simplify the practice of medicine, and add vastly to the successful treatment of medical and surgical disease.

ULCERATION OF THE LARYNX. This is a disease which occurs about middle life or in the beginning of old age, if it do not happen at a much earlier period, and is generally of a chronic character. The first appearance is a hoarseness, which continues for a considerable time without getting better, and which arises from a thickening and enlargement of the mucous membrane of the superior portion of the larynx, and parti-

cularly of the rima glottidis. From this condition it degenerates into ulceration, and now becomes a case of *laryngeal consumption* (phthisis laryngea). In the beginning the patient pays no particular attention to the case, and most probably applies his own nostrum for a cure. In the regular course of time he begins to think of having something done for him in a legitimate way. An experienced practitioner will understand his case, and warn him that it requires great care and management, as at no very distant period it might end in his destruction.

I have known many in such cases to have employed bloodletting, blistering, warm baths, diaphoretics, cathartics, low diet, the iodides of potash, and lastly mercury, without obtaining the least success; but on the contrary, adding every day to the danger of the case; after which they are ordered out of town to be got rid of, and in obedience to such commands remain in the country, with their vital energies wasting day by day, until death puts an end to their sufferings.

This form of disease begins in the first instance with slight constitutional disturbance. The neglect of some, the dissipated habits of others, and the laborious occupations of more, soon add to the mischief. In most cases it comes on slowly and almost imperceptibly at first, and in others it is developed with great

rapidity. The arrest of the disease will depend upon the knowledge of its cause, and the discovery of this will require much discrimination on the part of the practitioner.

If it arise from constitutional derangement, dissipated habits, or nature of occupation, the treatment will be accordingly indicated; but we should by no means resort to depleting or highly stimulating remedies in this particular form of laryngeal disease.

TRACHEA. This part is a continuation of the larynx, and its diseases are so intimately connected with it, that it would be unnecessary to enter into any disquisition upon them.

Tracheotomy and *laryngotomy* have been occasionally employed when inflammation at the top of the larynx threatens immediate suffocation, for chronic ulceration of the same parts in adults, or for the removal of any foreign body which might get lodged in any part of the great tube of the pulmonary apparatus, laryngotomy is preferred to the former, and the operation in either way is easily performed in every instance, although so much has been said by some operators upon the great difficulties and dangers which are represented as always surrounding it.

These obstacles, I presume, are made by themselves either in their lectures or in their writ-

ings, and succeed in deterring many practitioners from performing them, so that the credit or honour in doing them might be carefully reserved for themselves. This system applies to most other of the operations in surgery. The great point to be observed by the medical surgeons is to select the proper cases for the operation, and this, in my opinion, is far more difficult to do than the operation itself. To choose the case for which the operation is fitted, and the time for doing it, is to show the skill or judgment of the medical practitioner.

BRONCHI. The trachea divides itself into two branches upon entering each lung, and these branches are called bronchi; and when in the lungs they undergo further division and subdivision until they terminate in small globular cells, which are called air-cells. It is curious to remark, that the ancients gave the name of *bronchus* to each tube, under the idea that the liquids passed from the mouth through them into the body, while the solids passed through the œsophagus. This misapplication, like most other terms in anatomy, medicine, and chemistry, has become an established corruption which it would be difficult to remove, although so inconsistent with a correct and scientific nomenclature.

There are two kinds of inflammation of the

bronchi and their ramifications, including the air-cells; the one acute, and the other chronic.

The *acute inflammation* comes on suddenly, and often while the constitution is in a healthy state, and in proportion to the health, strength, and amount of provocation given, is the force of the attack regulated. In cases of this sort there can be no doubt as to the method of treatment, and an immediate arrest of the inflammatory development should take place when they are in the hands of discriminating and sharp practitioners.

I might fill this book with cases illustrative of the absolute power which the depletory system exercises over acute bronchial inflammation; and I might also adduce numbers of cases where the non-application of it produced the most melancholy results among the young and robust, who afterwards pined away day by day, either in consequence of immense purulent expectoration, tubercular ulceration, effusion, or some other of the morbid changes which usually follow not only acute inflammation of the bronchi, but of every other portion of the pulmonary structures.

Before the attack is allowed to be fully developed, venesection, tartarised antimony, (when no previous disease of the heart is known to exist, or when no highly apoplectic appearances would indicate the contrary,) warm baths, diaphoretics, light mucilaginous drinks and starvation, are sure

to lead to successful results, the improvements being indicated by the skin, tongue, pulse, and general expression of the countenance.

When the attack is fully developed, the same treatment is to be applied, such modifications or changes being introduced as may be suggested by circumstances.

It will sometimes follow that an attack of acute inflammation of the mucous membrane of the air-passages will threaten to fix itself upon persons already suffering from asthmatic difficulties. In such cases it must be treated upon the antiphlogistic plan, and as a *new* case, only regulating the amount of depletion by the state of the system when it is complicated with asthmatic difficulties.

CHRONIC BRONCHITIS. Chronic inflammation of the mucous membrane of the bronchi is excited by constitutional disturbance set up by various causes, and if not got under will by slow degrees carry off those who labour under it. Vast secretions from the mucous surfaces are daily occurring, and more particularly when a humid state of atmosphere is about to succeed a dry one. A light, clear, and dry atmosphere invariably relieve and mitigate *all discharges*, coming either from mucous surfaces or ulcerated parts. Atmospheric actions most undoubtedly

govern the condition of those parts or surfaces to a surprising extent; and the best time for the application of remedies or specifics is in that condition of atmosphere which subdues inflammation, and inclines the parts to heal from natural causes.

By comparing the amount of the expectorated secretions to the gains which the system receives from the ingesta, we shall find our prognosis. If the appetite be impaired, so that the food and drink taken cannot supply the loss which is sustained by the matter secreted, our prognosis must be unfavorable. If we have the power of restoring the appetite and keeping up the system by proper nutrition, then the case is fairly met, and we may hope for favorable results.

This view of the subject has often led me to the best method of treating this fearful disease, and with the most wonderful success. Cases for illustration I consider to be needless, as soundness of the principles must appear obvious to the simplest understanding.

Mild air, milk and vegetable diet, fresh meats much under done, and once a day only and in moderation, will be among the most efficient remedies with respect to dietetics. Inhaling carbonized air, or air impregnated with ammoniacal irritants, acrid gases, such as those of chlo-

rine or iodine, or any kind of bad atmosphere, will do almost irrecoverable mischief. Reduced diet, or foods and drinks containing small quantities of nutritious matter, will have the same consequences. Over-exercise, heavy clothing, or any habits or vices which are likely to attenuate the system, will be fatal to all prospects of recovery. Tonic medicine, cool air, cheerful occupations will greatly assist to favour our fondest endeavours.

If pectoriloquy should be detected, the case has gone into an advanced stage of *consumption*; nevertheless, we should not despair of favorable results under the system of management which I have just now recommended.

VASCULO-PULMONARY DISEASE. There are two sets of vessels which mix themselves with the other pulmonary structures. One set is for the support and nourishment of all those parts which constitute the substance of the lungs and are called bronchial, while the other set are called *pulmonary*, although giving no sustenance to any portion of their structure; but are merely passing through, carrying in them venous blood to undergo in the lungs those chemical changes which are absolutely necessary for animal existence. In the lungs the arteries carry venous blood, while the veins carry arterial, which is

the reverse of what takes place in every other part of the body with regard to the same system of vessels.

Rupture of the first set of vessels seldom or ever takes place so as to destroy life, although much alarm is created from such an event, while the same occurrence in the pulmonary vessels will be attended with fatal results.

Case of malignant ulceration extending to the pulmonary artery, and absorbing its coats, whereby sudden death was produced, the circumstance leading to a charge of murder against the wife and brother-in-law of the deceased.

Case. John Million was about thirty-five years of age, and up to the time of his death complained of no illness whatever. He was of large stature, and his muscular structure was well developed, and otherwise indicated rude health. When getting into bed he died instantly, and his lifeless body was found by his wife who followed him from the parlour to the bed-room in about five minutes after he had left to rest for the night. The family were known to be quarrelsome, and particularly about money matters, and had a dispute some few hours before, when some blows were struck. It was thus suspicions were entertained of a murder having been committed. The outcry in the neighbourhood brought the police, one of whom

was despatched for me, as being their medical officer. I immediately attended, and upon careful external examination pronounced it to be a case of rupture of one of the great vessels. I next made a post-mortem examination, and found the case as I had anticipated. After the examination, I replaced the whole of the morbid and sound parts nearly as I found them, and then departed. The parish authorities where the accused persons lived now took up the case, and despatched their medical officers for inquiry. They accordingly re-examined the body, and could *nowhere find an ulcerated cavity or ruptured vessel, and especially in the lungs; and moreover stated that marks of violence were found upon the back part of the body.* My opinion being then known, the coroner's inquest was adjourned to allow for further examination. This investigation easily discovered a large surface of malignant ulceration, and the ruptured vessel, and the *marks of violence* were discovered to be nothing more than the first stage of decomposition, which was hastened by the extreme heat of the weather which then existed.

The unhappy persons against whom the charge of murder was raised were accordingly acquitted.

NEURO-PULMONIC DISEASE. The pulmonary nerves are branches from the par vagum and

great sympathetic. It has not yet been pointed out, whether the nerves supplying the pulmonary apparatus are subject to any special disease or not; but from their intimate connexion with the rest of the nervous system the lungs must suffer from any pressure either at their origin or in their course, so as to affect, if not entirely paralyse, their organic movements.

If any or all of the branches of nerves going to the pulmonary organs were divided, in proportion to the extent of their division would their organic action cease.

The action of prussic acid in the stomach is supposed to paralyse the respiratory organs, through the great sympathetic nerve by which life is immediately extinguished.

PULMONIC-PARENCHYMATOUS DISEASE. The parenchyma is the tissue connecting all the blood-vessels, nerves, and absorbents together. Its texture is soft and spongy, and contains within its structure the muco-glandular tubercles. These, when under diseased actions, get hard and large, and may be easily felt when any part of the lungs is pressed between the fingers.

Tubercular disease of the lungs is like that of any other glandular disease, and the progressive changes which affect them are increased size and hardness, and lastly suppuration. When the last

occurs, it is one of the most frequent and unfavorable forms of pulmonary consumption.

In irritable, and what is generally termed scrofulous constitutions, they are excited into action just the same as the cervical, inguinal, or any other glands of similar structure, and the suppurative process terminates in the same way internally as some of the others terminate externally, the former manner of termination being always more dangerous to the patient.

When many of the pulmonary tubercles take on the suppurative action together, and go on uncontrolled, cavities are formed and consumption is established, which more frequently than otherwise leads to fatal results. Pectoriloquy will discover this condition of the diseased lungs.

It is about puberty and the beginning of middle life that tubercular disease of the lungs makes its appearance. Cough, loss of appetite, wasting, depression of spirits, mark the approach of the disease. Tonic medicine, nutritious diet, pure air, moderate exercise, are recommended, while every habit which is likely to waste the powers of the system should be carefully discontinued. The contrary treatment would be ruinous to the successful issue of the case.

These tubercular depositions are congenital, and have their uses the same as any other of the glandular structures, and frequently remain in a

healthy condition to the end of our natural existence. If the young and healthy lung be well emptied of all its blood and exposed to the air for a little time, these mucous-tubercular glands will be seen in great quantities underneath the membrane which covers them. Glands, however small, grow to a vast size when under constitutional or local irritation. This we see in the cervical, inguinal, axillary and other glands, which when once excited are not easily reduced to their original dimensions and quiescent state.

EARTHY CONCRETIONS IN THE PARENCHYMATOUS STRUCTURE. In this connecting tissue are sometimes found large quantities of earthy matter in concrete forms, and some of them of considerable size. Pinching the lungs between the fingers will readily discover them.

Case. A healthy-looking young man every now and then coughs up these concretions. Before he does so, he is attacked with a slight difficulty of breathing, attended with an irritating cough, which he supposes to be the result of cold, of which he is susceptible. He carefully preserves these productions as a curiosity in their way. He is now in vigorous health, and pursues his avocations in the Metropolitan Police Force without pain or difficulty.

Case. A good-looking girl, about eighteen

years, and with every appearance of health, returned home from a family in Regent street, where she was staying, complaining of violent pain in the abdominal region, which seized her immediately after breakfast. I was immediately in attendance, and, considering the case as one of peritoneal inflammation, I bled her freely, and put her under medicine. In the evening she was no better; I then bled her again, and continued her medicine. At twelve o'clock she was dead, sixteen hours having elapsed from the commencement of the attack till her decease.

A post-mortem examination developed a series of mischief, besides a curious question for physiological consideration.

As the body lay for examination it exhibited the most perfect symmetry of form, and appeared in every other respect to be in a healthy condition. My first attention was directed to the abdominal cavity; and when the stomach was brought into view, I readily discovered an opening about the size of a shilling in the middle of its anterior surface towards the greater curvature which opened into the peritoneal cavity. The edges of this opening were thin and partly denticulated, and the opening itself exhibited all the characters of malignant ulceration. Through this communication nearly the whole of what she had taken for breakfast passed into the

abdominal cavity, and produced the attack which was the immediate cause of her death.

The liver was generally healthy; but in the gall-bladder I found about fifty concretions of different sizes, all of which completely filled that cavity, and thus left but very little space for the bile to accumulate.

I found the parenchymatous structure of the lungs everywhere studded with concrete earthy formations, of different sizes, some being of considerable magnitude.

It is now worthy to be remarked, that with a malignant ulceration going on in the stomach, the gall-bladder being completely filled with cholesterin, the lungs being everywhere studded with earthy concretions, that previous to her death she betrayed no symptoms of disease; but, on the contrary, looked a healthy, cheerful, good-tempered girl.

The pelvic viscera were healthy. Upon examining the ovaria I found two cicatrices in the right ovarium, and one in the left, thus indicating the escape of three ova. She was unmarried; and, besides, presented not the most remote appearance of being pregnant upon any occasion; indeed her moral character stood high in the estimation of every one who had her acquaintance, as well as those of her parents and friends. I relate these circumstances to give strength to

my position in a physiological point of view; namely, that in the virgin state the ova escape from their receptacles periodically, and go for nothing unless they are fecundated by the natural influences.

STRUCTURE OF PARENCHYMA. This substance is made up of serous membrane and fibrine, being everywhere thickly interspersed with very minute branches of blood-vessels, nerves, and absorbents. The membranous portion is a continuation of the pleuræ, which dips through every part of its substance, and in its course gives attachment and firmness to the whole of the air-tubes and pulmonary vessels. In severe inflammation of the pleuræ their deeper tissues become engaged, and we find effusion everywhere. This form of disease is called hydrops-parenchyma, and is similar in every respect to pleuritis when it terminates in serous effusion.

PLEURÆ. The pleuræ are muco-serous membranes, and invest the lungs in every direction. Thus their extensive distribution makes them a subject of great consideration from the varieties of form which they assume in the process of disease, and the great danger which results when they are seriously implicated by such alterations.

They are penetrated by blood-vessels, nerves, and absorbents, and their principal use is to secrete a serous or watery fluid which gives facility of action to the respiratory organs.

Young athletic persons, who pursue field sports, or severe mechanical or agricultural labours, or those who are actively employed in naval or military pursuits, are often subject to violent attacks of acute inflammation of the pluræ, which, if neglected, often lead to the most disastrous consequences. Uncontrolled and limited to its own surface, it terminates in effusion of serum or pus. When serum is effused it frequently ends in thickening and adhesion, and when pus is effused it is either absorbed or produces constitutional irritation. If the attack extend beyond the pleuræ, and dip into the parenchymatous structure, it then excites tubercular inflammation, which will terminate in tubercular abscess unless controlled by antiphlogistic treatment. Should the termination be in tubercular abscess, much difficulty, if not hopeless efforts will arise, and there will scarcely be a chance of averting the worst consequences.

In pleuritis there is no respiratory murmur. Œgophony, or goat-like voice, is a peculiar symptom of pleuritic inflammation, but only when the effusion is moderate in quantity.

There can be no doubt whatever of success

from bloodletting, starving, and the other forms of antiphlogistic treatment in the early stages of pleuritis. In the course of my practice I have known a vast amount of such cases among the lower classes to have been lost either for not knowing the proper person to whom they should apply in the first instance, or for not applying to the proper persons at the onset of the attack. Should pleuritis have terminated in abscess communicating with the thoracic cavity, then the pus should be drawn off by operation; and next we should employ tonic treatment, with full digestible diet, as the best means for constitutional restoration. When mischief to this extent supervenes on acute inflammation of the pleuræ it is very difficult to be removed, nevertheless I have seen a case now and then do well under this system of treatment which I have now recommended. It is in the beginning that trouble is to be saved, and everything is to be done for all kinds of inflammation, which if not then done, great calamities to the patient must follow.

CHRONIC INFLAMMATION OF THE PLEURÆ.

This form of disease exists in elderly persons of plethoric habit and purple-hued countenances. Serous fluid is being constantly effused into the pleuritic cavities from the surface of both pleuræ, and as frequently absorbed, until at last the fluid

accumulated is so great in quantity that sudden or unexpected death frequently takes place, to the surprise and consternation of every one around. After death the lungs are found to be shrivelled into almost nothing, such being the invariable consequence of this distressing disease.

When serum is effused, and too much either for natural or mercurial absorption, it should be drawn off by operation; but, however successful the results may be after so doing, the lungs themselves can never be restored to their original volume.

In such cases life may be greatly prolonged by a mild system of medical treatment, pure air, light diet, quietude and rest, and avoiding as much as possible the dangerous influences of atmospheric transitions.

Succussion or shaking of the chest will sometimes discover the existence of liquid in the same cavity. This mode of diagnosis is as old as Hippocrates.

OSSIFICATION OF THE PLEURÆ. Such cases arise from inflammation in the first instance throwing out upon the membrane coagulable lymph, which changes into a kind of bony formation as old age advances. Nothing can be done in these cases, except by pursuing a prudential

course of self-management in everything as regards our stay in the nether world.

PULMONARY ABSORBENTS. The absorbents of the lungs are very numerous and largely commingled with every portion of their structure. I do not know that we can assign any particular disease to them, although no doubt they get implicated with the neighbouring structures whenever they become the subjects of disease.

This department of the absorbent system performs the most useful labours in the animal economy, for it is by them that changes are effected which are absolutely necessary to our existence. They have immediate communication with the atmospheric air which we breathe on the one hand, and with the pulmonary veins on the other. In the integrity of this system the venous blood is decarbonized and receives oxygen instead, and respiration after respiration keeps up those changes which immediately act upon every part of the body, by which means our vitality is preserved.

To prove the great activity of the pulmonary absorbents we have only to go into a fresh-painted room, or into an apartment where fragrant flowers are kept, and to observe the peculiar odour of the urine when next expelled from the bladder. The vapour of turpentine, which is a

volatile oil, or the volatile oil ascending from fragrant plants or flowers, will rapidly be transmitted to the blood through which it circulates; it is then elaborated in the kidneys, and transmitted to the bladder for expulsion.

When such facts are considered, or when we reflect how actively these operations are pushed through the system, how careful should we be as to the character and quality of the air which should be admitted for the purpose of vitality. Living in a foul atmosphere amounts to a slow and premature death, by the ultimate production of organic disease. Everything which is made sensible to the olfactory nerves is either dissolved in the atmosphere, or mechanically suspended in it; it is thus our sense of smell is attacked or gratified. An attack upon the sense of smell should be taken as a warning to avoid it; therefore we should immediately decamp from all the foul and sickening effluvia which abound in every town and city, and particularly in parts of the metropolis itself, or beg and pray of the powers that be to issue and enforce such sanitary regulations as would suppress them.

There are many effluvia which are not directly injurious to the system, but are very much so indirectly. In an atmosphere charged with any disagreeable effluvium, persons of delicate tem-

perament lose their appetite, and constitutional derangement immediately follows, which in time shortens life by the production of organic disease. Other effluvia operate as direct poisons, such as carbonic-acid gas, carburetted hydrogen, prussic-acid gas, and several other non-respirable or deleterious gases. Non-respirable gases, when diluted with atmospheric air, maintain the power of doing mischief in proportion to the amount of their relative combinations.

The air is frequently contaminated with gases emanating from natural causes, which have injurious effects when transmitted to the system by the pulmonary absorbents. Gout, rheumatism, inflammation of the mucous and serous tissues, and of other parts, are often produced from air so impregnated. The ancients attributed much disease to have been produced by planetary changes, while Dr. Mead and others entertained similar sentiments. In these positions I fully concur, and not without good reason and practical experience.

THORACO-MUSCULAR DISEASE. The thoracic, and particularly the intercostal muscles are frequently the subjects of inflammatory attacks, which arise from exposing the chest for a long time to the action of a cold piercing air, or from over-exertion in hunting, riding, or the

other laborious pursuits. When the inflammation is confined to the muscular tissues only, there is great pain and difficulty in putting them into motion, the pains shoot so suddenly that the patient becomes fixed, and it is some time before motion is restored; then the first movements should be slowly and cautiously attempted. Should the inflammation become more general, and extend to the covering of the lungs through the intercostal vessels, and towards the centre of their structure; then instead of the pain and difficulty of breathing coming in sudden fits and starts, they become permanent, the patient being bound as if a hoop was tightly fixed round the thoracic cavity, and entirely suppressing the action of the respiratory organs.

If the patient be young and muscular, venesection, warm baths, nauseating medicines, light drinks and starvation will speedily reduce the attack. Should the inflammation terminate, in any of the changes to which I have alluded, in pleuritis, either from neglect in the first instance, or from bad treatment, then the management of the case must be conducted as recommended by me in that case.

Having now concluded the subject of pulmonary disease as directly affecting the various tissues which constitute the lungs, I now pro-

ceed to the consideration of diseases which appear in other parts of the body, and on which the development of pulmonary disease is often dependent.

SCROFULA. I do not like the word scrofula, for it literally means a little sow or pig, and implies a disease to which these animals are subject. Individuals of the highest and most distinguished families in this country have had this disease attributed to them, and often as one of the most delicate, and at the same time one of the most malignant slanders which could be whispered against the interests of honorable and respectable families. It is a name which ought to be immediately expunged from the statute books of medical science, and I therefore venture to omit it when speaking of what is considered to be scrofulous disease, and substitute the word *glanditis* instead, until some of the more distinguished members of my profession shall think fit to propose a term more expressive of the true pathology of the disease.

MESENTERIC GLANDITIS. This is a very common affection with infants and children badly fed and nursed, and frequently ends in atrophy and death. When it does not so terminate, a bad condition of the system is other-

wise induced, such as rickety dispositions in the bony structure often terminating in permanent deformity.

In the first stage the glands become irritated, inflamed, and then indurated, constitutional derangement follows; then the body wastes from its being deprived of its due quantity of nourishment, during which time the pulmonary glands take on similar actions, a constant teasing cough succeeds, until the little patients are at last carried off by a series of glandular disease.

I have had an immense number of such cases with children, and when it was my fortune to see a case in time, I made a correction in the dietetic system; and by attending frequently to the secreting and excreting functions, I was enabled to succeed in every such instance. I shall relate a very bad case successfully treated.

Case. A boy about four years old suffered for nearly two years from mesenteric and pulmonary glanditis, and was at various times under the care of respectable practitioners in this city, without deriving the least advantage from their treatment; but, on the contrary, suffered an increase of his maladies, which left in their minds little or no hope of his recovery. When I saw him he was a complete skeleton, with a large tympanitic abdomen, a dry and burning skin, and without sensibility to the touch; had a short,

teasing, dry cough, which severely harassed him both day and night; his voice was weak and powerless, and without sound when he articulated; his pulse was thready and intermitting, and with difficulty I could count *one hundred and seventy-five strokes per minute*; his appetite was confined to a little thin gruel and barley-water, and sometimes a little new bread or sponge-cake; his bowels acted but once a week, and always with pain and difficulty. I considered the case as hopeless; nevertheless, the parents desired me to do what I could for his recovery. He was under my treatment for four months, after which I retired, leaving him in a state of improvement, which much surprised and gratified his anxious parents.

I considered the case to be one of extensive glandular disease, brought on by a kind of diet, which excited the mesenteric glands in the first instance to active inflammation, and by which the system was by degrees deprived of its due quantum of nutriment. Pulmonary glanditis was the effect of this general disorganization, and upon those views I founded my treatment. My first consideration was to introduce nourishment, and to allay glandular irritations so as to let it pass into the system. All mercurial and iodine medicines, which the little patient had been previously taking, were replaced with mild tonic remedies. Fresh milk from the cow two

or three times a day, and a little stale bread soaked in red beef or mutton gravy displaced his other diet. In about a fortnight from the commencement of this treatment he was to me perceptibly better, and upon continuing the same system for a similar term his parents were able to see a marked improvement.

When I had retired from the case, his cough had nearly disappeared, the abdomen did not entirely lose its tympanitic condition, neither was the pulse levelled to its natural standard, yet I had no fear that, by a continuance of the rules of diet which I had previously kept him under, his complete recovery would be certain.

Inflamed glands do not yield very readily to the best systems of treatment, and when they do, the process of reduction is slow and tiresome. In twelve months after, I had the pleasure of seeing him finally restored.

There are but few parents, however exalted their rank or station may be, whose children are entirely free from mesenteric glanditis, the consequences of which pursue them in some shape or other for a long period of their existence. Ladies who do not suckle their own children generally hand them over for such purpose to a wet-nurse who has vulgar and dangerous opinions on the subject of the management of

children, and out of these circumstances do frequently arise the most lamentable results. In glandulo-irritable systems, glandular inflammation is easily produced by improper diet or other exciting circumstances, and when once it is set up, great skill and scientific management are necessary to reduce them to their natural order and condition.

CERVICAL GLANDITIS. The cervical glands in early life are often thrown into a state of inflammation, and occasionally slough, from the same agencies which excite the glands before mentioned into a state of active disease. Although there are no visible signs of the pulmonary glands being excited with them, beyond a short hacking cough, nor of the mesenteric glands beyond a general emaciation, yet there can be no doubt that great sympathy exists throughout the glandular system when one set or other of them are under any form of disease. It is unfortunate, that these important circumstances have been overlooked by almost all those who have written upon the diseases of children, and by most of those who had done so upon pulmonary disease; and as writers generally undertake to direct the masses of their brethren (who have neither time nor inclination to write) as to the treatment of disease, they should be particular in doing so in

the true spirit of duty towards them, which would found the management of health and disease on sound philosophical principles and actual practice; but instead of doing this, the profession is frequently misled by men who write without being troubled with a practice, and who substitute the wildest doctrinal schemes for those which should be grounded on practical experience.

During infancy and childhood the system is not favorable to glandular ulceration, and particularly in the pulmonary structures, although the enlargement and induration of these glands are of frequent occurrence. Those children who have a hectic rosy countenance, thin and delicate skin which shows the course of the capillary vessels, fine silky hair, tympanitic stomach, cuirass-shaped chest before with narrow form from front to back, together with high shoulders, mark the glandulo-irritable subject, and should regulate parents and practitioners as to the principles according to which they should be treated. The most likely time for glandular ulceration is at and about puberty, and when this happens fatal consequences generally follow. The new habits of life which are acquired at puberty often urge on this termination; in the rich by their fashionable excesses of every description; while in the humbler classes the various vicissitudes to

which they are exposed often bring about the same consequences. The poor often have their fashionable enjoyments as well as the great, and frequently suffer dreadfully when they have not taken them with prudence and moderation.

When an indurated and enlarged gland proceeds to ulceration, the ulcerative process seldom or ever discontinues until the gland has sloughed ; therefore it would be highly improper to attempt any measures of interference until the gland has sloughed, beyond improving, by diet, air, and exercise, and tonic medicines, the general condition of the system. I allude particularly to those glands which slough externally, and whose outward treatment should be cleanliness, and dressings of mild and unirritating ointments.

When an endeavour is made to divert the disposition of the gland from the suppurative process, instead of accomplishing that which is intended, an increased amount of mischief is perpetrated, for other glands in regular succession get into the *mêlée*, the difficulties of the practitioner increase, the confidence of his patient is shaken, or his fears are greatly multiplied. In this situation it would be better to abstract him from all kinds of medical treatment than to go on ; for if so, it would surely lead to the ultimate destruction of the patient by vastly increasing the amount of the ulcerating surfaces.

The matter secreted in the glandulo-ulcerative process is thin and salivary, having curd-like flocculi or shreds floating in the liquid secretion. This liquid, without the flocculi or shreds, appears to be the same which is secreted for normal purposes, while the shreds or flocculi are portions of the gland itself.

During the sloughing process of glands the fluid secreted is sometimes puriform, and at others thin and watery; these changes result either from the atmosphere, or from improper diet acting so as to produce constitutional disturbance or bodily disquietude. The appearance of the fluid is always a test of the state of the system, and thus we should be enabled to regulate it when irritated by acquired or natural circumstances.

When any of the pulmonary glands have sloughed, it does not follow that fatal consequences should result, any more than in sloughing of the cervical, inguinal, or other glands; and like them, cavities or cicatrices may be as commonly found after sloughing of the pulmonary glands as those of the glands which I have named.

When many glands are made to take on unhealthy actions from constitutional causes, these glands are changed from their natural uses in the system, and complication so follow in them, as to endanger speedily the whole of the living fabric. Every gland in the body has its uses;

the fluid which each one secretes has its destination, and the want or the diversion of it from such uses destroys the natural balance of the system.

It is said that glanditis is hereditary, and I should say so too, as long as the glands in the body are hereditary, and are the subjects of disease, and glandulo-irritable constitutions may be handed down from parent to child ad infinitum.

In any stage glandular disease is not infectious; nor is any form of pulmonary consumption communicable from one individual to another; this doctrine is contrary to the opinions of all non-medical persons upon the subject.

The blood in consumptive patients exhibits both in appearance and analysis, all the characters of a weak and debilitated condition of the system, the serum being in a much larger proportion than the crassamentum, with *cupping* and *buffing*, together with the crassamentum forming a loose and feeble coagulum. These appearances therefore decide most accurately the treatment which should be employed in such cases, and particularly contraindicate the employment of exhausting or antiphlogistic remedies, while they favour every means which can give strength and vigour to the system.

The further misapplication of the term "scrofula" may be noticed before I conclude the subject

of glanditis. For instance, all ulcerations of the hard and soft parts not directly glandular, abscesses, fistulæ, caries, syphilis, certain forms of ophthalmia, diseases of the nose, mouth, lips, and cheeks, all affections of the synovial membranes, come under the head of the swinish disease. A name should be given to every disease from its situation, or the texture, part, or substance which might happen to be the subject of morbid action, then students and young practitioners would have their attention properly directed, so that they could bring their thoughts to bear upon any of the forms of disease which they might be called to treat. Modern chemistry has done this in its nomenclature, so that the chemist knows the composition of the several compounds employed in his art by the name which they respectively bear, and often the proportion of atoms which compose them. With such changes medical science would make the most rapid strides in improvement, and would thus keep pace with the kindred and other sciences, which have, from their improvements in the present age, gained for them so much respect and admiration.

Pulmonary consumption is often produced from other diseases not glandular, and of which I now proceed to treat.

DISEASES OF THE JOINTS. Long-continued

articular diseases often give rise to morbid changes in the pulmonary structures. Some time before and after puberty diseases of the joints are more likely to commence than at others, and as the consequences are often awfully severe in their terminating either in pulmonary consumption or in permanent deformity, the utmost precautions should be used to avert such mischief.

Before the establishment of puberty the constitution is constantly changing by rapid starts of growth, which often produce a wasted or attenuated figure; it is then that disease of the joints threaten if they do not establish themselves, and where such a disposition is known to exist, the greatest care is indispensably necessary to prevent them. All the articulating surfaces with their coverings are subject to various forms of inflammation the same as any other one of our structures, and when such inflammation begins in them, it is often difficult to allay it without leaving some permanent injury behind.

In numbers of families are to be found persons who are or were victims to diseases of the articulating surfaces and their coverings. Amputated limbs, shortening at the hip-joint, stiff joints, or deformity in some shape or other mark the character of the disease which caused them, while in others the same diseases brought on pulmonary

consumption, which led to the destruction of the patient.

A large portion of these cases are unfortunately intrusted to persons devoid of medical science, and hence it is that so many persons are known to have suffered.

It should be recollected that inflammation of the joints terminate in either of the following principal forms, namely, resolution, capsular thickenings, suppuration, chronic ulceration of the cartilages, ligaments and adjoining textures, and in ankylosis. In a long case of chronic ulceration the body wastes from constitutional irritation, and pulmonary consumption is developed, which more frequently than otherwise carries off the sufferer.

The great object of the medical practitioner should be to end it with resolution; should, however, the case go on to ulceration, then he should well support the system until the completion of ankylosis. To effect a resolution, depletion, warm fomentations, rest, diaphoretics are the leading means; but their application is to be regulated according to the age, strength, or other circumstances connected with the constitution or character of the patient,—their quietude, good air, light nutritious diet with mild tonic medicine, will restore the system to its normal condition.

When inflammation of the knee-joint terminates in ulceration of the cartilages, and the

system is seen to waste as a consequence, the apprehension of pulmonary disease recommends amputation as the safest remedy; and I very much fear that many an amputation has been performed by men having the reputation of being the most eminent surgeons, where such operations might have been readily dispensed with, had they been acquainted with the principles of constitutional treatment. The following is a bad case in exemplification.

Case. A young female about seventeen years of age, of glandulo-irritable habit, was seized with a violent attack of cold shivering, which determined itself to the knee-joint, and rapidly passed into the ulcerative process. Herself and friends were prepared for the length of the case, and for a considerable time submitted patiently to the authority of the family attendant. They now got impatient, and the highest authorities were invited to see her.

One prescribed senna and salts, with starvation, and of course quietude, while another recommended leeches, blisters, and quinine treatment with full diet, and then the mercurials and iodides were next called into requisition. Under all this management she got worse, and pulmonary symptoms declared themselves and the next consultation decided upon amputation. One of these gentlemen had even a European reputation, besides

being of good standing at court; nevertheless, neither his dictum nor that of his colleague was ever obeyed. When they retired I thought an anchylosed joint might be produced, and the operation so formidable in itself, and so detrimental in its effects, might be safely dispensed with. The operation, however, was delayed for a little time, at my request, with the consent of herself as well as of her friends. I also obtained permission to treat her as I thought proper, as a last resort previous to its performance. She now laboured under great debility, had hectic flush, irritable pulse, dry cough, and difficulty of breathing, and her person was everywhere wasted. There was one important circumstance which gave me hope for the future, and that was her appetite had not entirely failed, and it now remained for me to take the best advantage of this very favorable circumstance. The gentlemen who so lately saw her had been recommending her sago, arrow-root, chocolate, light puddings, with a total abstinence from all kinds of animal food, and to keep the bowels in daily action by small doses of saline purgatives, with a continuation of the iodides as her ordinary medicine. None of these dietetic recommendations were now considered, and instead she took sixteen ounces of pure milk morning and night, with six ounces of pure wheaten bread at each meal. She took for dinner

six ounces of beef or mutton much underdone, with potatoes in proportion, and half a pint of mild porter. I avoided all purgatives whatever, and let the bowels take care of themselves, and discontinued all kinds of medicine, with the exception of a mild solution of quinine with sulphuric acid in a little water three times a day. In the course of a very little while she began to gain health, strength and spirits, and the bowels began to act every day from the diet only. The cough soon began to subside, the flushed appearance of the countenance diminished, and she became cheerful and full of confidence; the income of her system being greater than the expenditure, a general good condition everywhere presented, and left no doubt whatever of saving the limb by an anchylosis, and so leave her without much inconvenience in her powers of locomotion.

Case 2. A young gentleman came from the country with disease of the knee-joint, which was in its appearance and effects similar to the case just now related. He was ill for a long time, and under the care of some of the most eminent of the provincial surgeons, without obtaining any advantage; he having got worse they recommended amputation. It was this decision which brought him to London, to consult a late distinguished baronet, who was considered to be at the head of his profession. After being under

his care for some time he also recommended amputation, or else his friends must submit to lose him. Being an only son, and his parents desirous to run any risk to save the limb, they sought the advice of Scott of Bromley, who although not being a regular surgeon, had considerable reputation for curing diseases of the joints. He remained under his treatment for four months without the least advantage, and then returned home as incurable. His appetite yet remained to some extent, and he was gratified with everything light and nutritious which he could take, and in a little time he began to show a general improvement. He was now allowed to take the ruder kinds of food, by which he rapidly improved, and discontinued everything like medicine, and in a few weeks more both his limb and himself were secured, much to the joy and gratification of his parents and every person who felt interested for him. He is now a fine young man, and executes all his movements with little or no inconvenience.

Here we have two cases of disease of the knee-joint condemned to amputation by *pure surgery*, both of which recovered by constitutional treatment alone. Such operations are far from being uncommon in diseases of the knee-joint, and if we are to judge from the two cases which did so well without, how many amputations must

have been cruelly and unnecessarily performed by many of the older surgeons. The punishments under surgery, up to a modern date, have been truly awful, and such as our criminal code, in the worst of times, could not have contemplated as punishments for the vilest offences against law and morals.

The science of constitutional treatment should be the great principle of surgery, instead of which the mechanism of the art alone has been cultivated; but notwithstanding a new party has sprung up of late years, which is actively cultivating the former science, and thus we may hope to see great advances speedily made in the science of treating by medical knowledge what is especially considered as surgical disease.

I have before spoken of the means to be employed in promoting resolution, for it is in this that the fortune or misfortune of the case is to be decided. If it be not done within a very few days after the case has shown itself, the chances of success would be greatly diminished.

SPINAL DISEASE. All the articulations of the spinal column are subject to disease the same as those of the other joints; but why it should be so capricious in its determination to one joint more than to another is a question for the learned to answer. The parts of the spine most fre-

quently affected are those between the dorsal and lumbar vertebræ, because it is among them that most of the actions are performed, as they relate to the necessary movements which are constantly going on between the upper and lower parts of the body; it is therefore in this situation where the surgeon would examine when he suspected the existence of spinal disease.

When any of the articulations of the spinal column are diseased, the nerves which issue from their sides to the neighbouring parts often become paralysed from the pressure of the diseased parts upon them, and the power of feeling and of motion are for the time being either partially or totally suspended, and so it is that the natural evacuations become irregular when spinal disease is so situate as to affect those nerves which go to the several muscles through which the urinary and fæcal excretions are effected. When these diseases are long continued, constitutional irritation is set up, the pulmonary glands become excited, and the patient is at last compelled to yield under the pressure of a copious muco-purulent evacuation.

Persons of glandulo-irritable habit are often the subjects of spinal disease, as well as those of the other articular diseases; and my experience leads me to the conclusion that they all arise from the same source, which is that of debility in the

organic functions. Cough, loss of appetite, and general lassitude will accompany disease of the spine in the first stage. In its other stages the consequences are so palpable as to require from me but little notice. In every case which came before me, I succeeded in turning the threatened mischief by restoring the constitution to a healthy condition, by means of a well-applied system of nutrition, and tonic medicine, together with pure air and moderate exercise.

I shall now relate a bad case.

Case. A young lady was brought to me for advice, when she had been observed to draw her right leg after her in walking. I immediately examined the spinal column in the situation between the dorsal and lumbar vertebræ, which I found tender to the touch, although having nothing in the outward appearance to mark the existence of disease; I therefore pronounced it at once to be a case of disease of the spine. Her mother having an opinion of her own, and seeing nothing about the spine from which she could judge of the existence of disease, was determined upon having the opinions of those gentlemen who specially devoted themselves to the management of spinal affections. I lost sight of the case for some months, during which time she made the round of almost every eminent surgeon in London, and particularly those who were identified with

spinal deformity. When I again saw her she presented a cadaverous and wasted appearance, and exhibited all the signs of incipient phthisis; the projection of the vertebræ became conspicuous, and near to them were peas vegetating in the lumbar muscles, and resting in cavities filled with purulent fluid; the countenance bore a hectic flush, and the circulation was quick and irritable. The mother being now subdued and full of despair, left me to do in the case whatever my judgment might dictate.

She was placed upon a double inclined plane, which I had made for her under a modification of the late Mr. Earl's bedstead. I next removed the peas and allowed the cavities to heal, and then put her on pure milk diet morning and night, with wheaten bread made of the purest flour; her dinner consisting of either beef or mutton underdone, vegetables, and a moderate quantity of Whitbread's porter. Her medical treatment was a draught of quinine in a weak solution of pure sulphuric acid three times a day. No purgative medicines in any shape were administered.

In a few weeks she left the double inclined plane, and every day after improved most rapidly, and now she is a robust healthy-looking girl, without any appearance whatever of her ever having had spinal disease.

This case is curious as exhibiting the various modes of treatment which were pursued in the course of the disease, by the several surgeons under whom she was placed. The mother having faith in all the prescriptions, carefully preserved them, and their perusal by a young man of recent standing in the profession would excite in him nothing but the greatest surprise and astonishment. The code which regulated the practice of surgery up to a very recent date has been cruel indeed, as this case can exemplify; but happily for the community some men now exist who, educated under the prejudices of the old school, have ability not only to discern, and a desire to adopt the new principles, when they are found to be reasonable or sound, in all those cases which come under their professional cognizance.

PSOAS ABSCESS. This disease is not of frequent occurrence, and is generally to be seen in young persons of glandulo-irritable habit, and who addict themselves to sedentary pursuits. It comes on without any apparent cause or of any causes of which the patient is cognizant, and begins with a feeling of weakness in the lumbar regions, and in a drawing of one or both limbs in walking, as in spinal disease. The pain increases by degrees until the patient can no longer move about; now

the appetite is greatly impaired, the countenance flushed, the pulse quick and irritable, with a teasing cough, marking the commencement of pulmonary disease. Under these several symptoms the system soon gives way, until all hope of recovery is at an end, after which the patient sinks under lung disease, although the original case was that of psoas abscess.

The following is a bad case successfully treated.

Case. The patient was a female about seventeen years of age, whose habits were sedentary, and her constitution glandulo-irritable. When I saw her she was confined to bed from a severe pain which she felt on the left side of the spine close to the lumbar vertebrae; her countenance exhibited a chlorotic aspect, and was marked with care and melancholy; her voice was feeble, and expressive of great weariness and constitutional depression; her tongue was pale and flaccid; and her excretory organs under great functional derangement; her catamenia appeared about three years before, since which time they returned at irregular intervals, and always with pain and difficulty; she had a short teasing cough and a wiry irritable pulse, beating *one hundred and seventy strokes per minute*; her skin was cool and dry; and in all other respects her case was one for which the worst fears might have been readily entertained as to her recovery.

Upon inspecting the lumbar region there was an abscess of large circumference pointing, and situate close upon the sides and middle of the lumbar vertebræ, which in a day or two opened and gave off a thick yellow fluid streaked with blood, and of the most intolerably fætid character, so much so that one of the attendants fainted in the room, such being its offensive influence. Something of an appetite remained, which was the only ground for hope by which I might effect her recovery, and this I cultivated in the most cautious manner.

The treatment commenced by her taking as much pure milk as she could, night and morning, combined with a portion of stale bread; her dinner consisted of fresh meat, floury potatoes, and Whitbread's porter, beginning with the smallest quantities of each, which she took more from duty than from desire; with this I combined the quinine treatment. Over the circumference of the abscess I kept some linen rags wet with a solution of chloride of lime, and over them a well adjusted linseed poultice. Every time these dressings were removed the fætor was horrible, and continued so for some weeks until the whole of the left psoas muscle came away with the forceps as clean as if it had been dissected out, leaving a considerable depression to mark its departure. When this occurred I then plugged

the cavity with very soft lint dipped in a weak solution of nitrate of silver in distilled water, and then sealed it with the linseed poultice. The secreted matter now lost much of its offensiveness, and granulations rapidly sprouted up from the bottom of the cavity; her countenance assumed a marked improvement, and every day she appeared more cheerful and light-hearted. Notwithstanding the favorable manner she progressed, the pulse kept up for a considerable time, and it was not till long after I had retired that it returned to the natural standard. She is now a healthy girl, and quite free from any of those appearances which marked her former illness.

ULCERATION OF BONES. The bones are hard bodies and principally composed of phosphate of lime, and are everywhere penetrated by arteries, veins, nerves, absorbents, and are covered by a fibrous membrane called periosteum, giving transmission to all vessels, nerves and absorbents which go to, and return from them to all the parts before named, for the purpose of supporting their vitality.

The bones are subject to attacks of inflammation just the same as the soft parts are, and their termination is in almost every respect similar. The first attack upon a bone is made through the periosteum, the inflammation of which leads

to the suspension of action, or total destruction of those vessels which go to the parts of the bone which it covers. The nutrition of the bone being cut off by the destruction of those vessels which convey it, causes it to perish, the dead portion then becomes a foreign body, and its ejection from the system often leads to great constitutional disturbance, the pulmonary glands get excited, the body wastes, and a continued cough marks the commencement of lung disease.

The pain which is felt in acute inflammation of the periosteum is sometimes so severe and intolerable to the patient that all rest at night vanishes, the appetite becomes seriously impaired, and this is the commencement of constitutional disturbance.

Towards middle life gout and rheumatism show themselves most, and these well known terms, according to modern investigation, apply only to inflammation of the fibrous tissues, and those tissues being freely distributed about the joints account for gout and rheumatism being observed about them more than in any other situations. Persons who are subject to attacks of gout and rheumatism are occasionally attacked with inflammation of the anterior covering of the tibia, which when inflamed is termed periostitis. In periostitis the pain is dreadful, and the consequence terrible should it go to suppuration, for

then it eats through the different textures of bone, however hard and close they may be, the loss of substance being in proportion to the extent of the vessels destroyed in going to them. When bones are thus excavated by disease it is that the parts of the bone become resolved into their original elements, and crumble into an impalpable powder, which is carried off in the course of the ulcerative process, leaving behind a cavity proportioned to the parts so removed. When the suppurative process has ceased nature immediately begins the work of reparation, the vessels destroyed are replaced by the formation of others which present themselves everywhere about, and are like faithful guardians constantly on the watch to lay in their several contributions, which they do with the industry of bees until the ulcerated cavity is filled up with new bony materials. The formation of new bone is a slow process, and is often attended with great constitutional disturbance, and the fear of pulmonary disease establishing itself often determines the surgeon in amputating the diseased limb. Some few years ago a titled surgeon of the court amputated a leg which had ulcerated tibia, at a time when the healing process was rapidly advancing; this shows that had he attended a little to constitutional treatment or to common observation, the limb would have been easily saved, and the

patient the horrors of a grinding operation. The severed limb upon examination showed it to be in the condition to which I have alluded.

The treatment of inflammation of bone should be according to the age, condition, cause and standing of the case. If the subject be young and can bear it, and the attack sudden and acute, bleeding, emetics, warm baths, and starving will soon put the case under arrest, after which it will get entirely well under the simplest management. But if it take place in middle life in a bad constitution, and be of long standing, then nutritious diet, good air, quietude, cold water dressings will soon bring about the most favorable appearances.

The great point in the treatment of diseased bones is carefully to support the system against the loss which it sustains during the reparative process, which is at best tedious if not painful. I think the mercurial and iodine preparations in all cases of diseased bones do a vast deal more harm than good, and that much circumspection should be used by every surgeon before he employs them in any such cases.

I shall treat of these preparations in another place, and now proceed to give a most unfavorable case of ulceration of the sternum successfully treated by constitutional management.

Case. The patient was a boy about nine years

old, who was attacked with pain and inflammation in the middle part of the sternal bone, a little towards the right side, whilst staying with some friends a little way from London. After seven weeks' illness, during all which time he was under the care of a respectable practitioner, he was removed to town and placed under my care. Upon visiting him I found him greatly emaciated, his countenance pale and sickly, with a greenish hue, his voice whispering and weak, his skin cold and clammy, his cough was dry and frequent, and his nights sleepless, his pulse was weak, small, and partially intermitting, and could with difficulty be counted at *one hundred and seventy-six strokes per minute*; all his secretory and excretory functions were unnatural in their operations. The pain in the bone now continued to increase, and in a little time a slight elevation presented itself, which increased by degrees until a redness was sufficiently perceptible to mark the extent of a considerable abscess, after which pointing took place with fluctuation, which symptoms led to an immediate enlargement of its contents. After the operation a large quantity of pus came away, and so continued more or less for several weeks afterwards. A flexible tube found its way into the right thoracic cavity for several inches: but no pus escaped through it, from which circumstance I conclude that the

disease began at the pleural side of the bone, and the pus retained under its coverings until the bone was absorbed into an opening which communicated externally.

From the description of the case which I have given, it must be concluded that no more unfavorable case for recovery could come before a medical practitioner, for I had a ruined constitution to treat and a continued drain upon the system to counteract; but on proceeding upon grounds both rational and simple, and often contrary to the usual routine, I was enabled to guide the case to a favorable termination.

His stomach being weak and irritable, and rejecting everything but liquids, limited greatly my sphere of operation by dietetic management. I therefore began upon milk diet alone, which was obtained from animals fed upon grass, the quantities being increased from day to day by his own desire, until he took rather more than thirty-six ounces per day, bread being gradually conjoined in very small quantity with each meal. For a few weeks he neither gained nor lost, but maintained a balance between the income and expenditure of his system, which was a matter of the utmost importance with regard to ulterior measures. Quinine, sulphuric acid, and distilled water constituted his medical treatment. After this I induced him to take a little fresh juicy

meat, much underdone, which at first nauseated him as much as medicine; but taking it as a duty he soon got reconciled to it as a pleasure; with his meat he took vegetables properly cooked, and Whitbread's stout in bottle. His improvement now became palpable to all his friends; the pus came off thicker and less in quantity, and new bone was deposited with great rapidity. Throughout the case the external dressings were pledgets of the softest lint laid over the sternum, kept in the place by long strips of adhesive plaster, and over them was placed a soft pad, so as to defend the parts from external injury, and to preserve that vitality in the vessels sufficient to encourage the formation of bone. He now was improved so much in health and strength, that I discontinued my attendance, leaving the pulse in a quick and irritable condition, which did not entirely subside till a long time after I retired from the case.

In all cases where the stomach is weak and irritable, the greatest caution should be used in the administration of medicines, and, however invaluable a medicine may be to any case, should that medicine not remain with perfect quietude on the stomach, it should be immediately discontinued; the same principle applies to every system of dietetic management.

HEMORRHOIDAL DISEASE. Congestion of the hemorrhoidal vessels, producing what is commonly termed piles, and running into fistulæ when in weakly and delicate constitutions, tend to drive the pulmonary glands into a state of ulceration. In persons who suffer from pulmonary disease is to be found more frequently than otherwise hemorrhoidal disease, which shows that great sympathy exists between the lower bowel and the pulmonary organs. When both these affections coexist, danger of the worst description is to be anticipated. The continued drain upon the system by a fistulous opening will in a little time, with young and delicate persons, bring on phthisis; therefore such affections require our best attention.

The various theories which have been advanced upon the nature and causes of hemorrhoids would admit of much disquisition, when it is considered under how many circumstances they are developed. Hemorrhoidal disease in the young and glandulo-irritable, may well be looked upon as the forerunner of disease of the pulmonary organs; whilst in the healthy and robust in the middle and older periods of life, this might be supposed to exist for the most salutary purposes. When life begins to ebb, some of the natural secretions diminish and others are substituted, the latter preserving the balance of the

system under the constant and inevitable changes to which it is liable, and to interfere with them under such circumstances would be doing a serious mischief; in reality it would be interfering with secretions which have become natural under new constitutional arrangements.

The suppression of these secondary outlets, which have now become natural, might produce congestion of blood in the vessels of the brain, which would eventually lead to serous effusion, and so produce sudden death; therefore such excretions should be allowed to continue, care being taken that the system should be so managed as to keep up that balance which should exist between them and the matter excreted.

It is incontrovertible that after man has done his work in this world, or accomplished those purposes for which he was created, the hand of destruction begins upon him, and all the changes which occur to him about the middle period of life and after, mark the decay of his powers; yet such changes must be managed by the medical practitioner, so as to agree with the intentions of nature, or else much injury may be done. It is also to be considered that while we are so marked out by nature for ultimate destruction, the same nature has given to us an instinctive feeling for self-preservation, and it is a duty which we owe to the Author of our being to carry out our

lives to the fullest extent of human existence ; to do otherwise is a crime against nature.

When fistula is discovered in the young and glandulo-irritable, it should be immediately remedied by operation, and more particularly if connected with pulmonary symptoms ; then the constitution is to be supported by proper nutrition, and a well adjusted system of tonic medicine. To execute these purposes properly, skill and practical experience are absolutely necessary.

DIARRHŒA. This is an affection which often comes on without any assignable cause, and continues for days and weeks together, if not put under medical treatment, and it will go on so without any pain or suffering except from the inconvenience of repeated callings. Such are often the premonitory symptoms of pulmonary consumption, as they are often the symptoms of its latter stages. In young persons diarrhœa should be immediately put under control, as its continuance will rapidly give excitement to the pulmonary glands. When diarrhœa follows pulmonary disease little can be expected from putting it under arrest ; therefore it is the diarrhœa which precedes pulmonary disease that requires not only prompt but effectual attention. The effects of diarrhœa are sometimes truly

awful. An attack of but a few minutes will often change the voice into a whispering sound as in cholera, in a few minutes more the body is a skeleton, and upon a little further extension of time death is inevitable. In the short space of two hours I have seen cases which were beyond all possible recovery, and where no previous illness was known to exist. In four hours such cases were common, and when death did not happen at that time, it did in a few days after from congestion with a mortality equally certain. In these cases there is no time for organic change before death concludes the scene, and so strikes with consternation and terror all those who are witnesses of it.

Attacks of diarrhœa gradually coming on, and often appearing and disappearing, are those which excite the pulmonary glands and induce them to ulceration; such attacks, however, can be readily subdued upon a timely application, and under skilful management.

Without entering into any anatomical description of the alimentary canal, or of those tissues which are the seat of diarrhœa, I go to the treatment which has been principally employed in every form of that affection. Upon my first entrance into the profession, purgatives of every description were employed for the suppression of diarrhœa, as well as venesection. Dr. Hamilton

of Edinburgh was the great authority for the former practice, and which he recommended not only for diarrhœa, but for every other form of disease, however it might have originated, or in whatever constitution it might be found. His doctrines were everywhere indiscriminately adopted, and everywhere occasioned the utmost mischief. As they were taught me I employed them at my first onset in practice, and seldom or ever succeeded in doing anything but injury. It now behoved me to think for myself, which I soon did by pursuing a practice which I considered more rational, and which I found upon trial to be more successful. I found that saline and all other purgatives added to the irritation of the mucous membrane of the intestinal canal, and considerably increased the danger of the diarrhœa by inducing the inflamed membrane to go on to ulceration. Chalk and opium I relied upon as internal counter-irritating remedies, and in very many cases without disappointment. When the stomach was extremely irritable and rejected everything liquid, I then relied upon opium as imported, in half or grain doses every four or eight hours until the diarrhœa was subdued. When the stomach could bear cold water and brandy, or the same with citrate of potash while effervescing, much good was often effected if the complaint were not entirely controlled. The ex-

ternal counter-irritants were mustard and ammonia, which in conjunction with the treatment before mentioned, seldom or never failed in reducing diarrhœa when not connected with any other disease.

Bloodletting and purgatives, which used to be as they now are, the sole reliance of many practitioners, should be entirely abandoned as the most prolific sources of creating fresh mischief, when employed in the treatment of any form of diarrhœa.

Whenever there is diarrhœa there is absorption of all the muscular and fatty structures, and in proportion to its frequency and violence are those structures absorbed; therefore bloodletting and purgatives add to the great exhaustion which is already produced by the diarrhœa.

Diarrhœa is not always the forerunner of pulmonary or of any other disease, as it may occasionally occur from natural causes. The following is a curious case.

Case. I attended an officer of the London Excise for ophthalmitis; he was then about sixty-seven years of age; and in the course of my attendance it came out that he had four attacks of diarrhœa every day, with an enormous appetite. This appetite pressed so much upon his income that he could not marry till late in life, at which period its force began to diminish.

Up to fifty-seven years of age he could take for breakfast seven rolls and butter, seven pints of coffee, two dozen eggs ; soon after which hunger would attack him again, so that he was obliged to eat biscuits until the hour of dinner had arrived. His breakfast averaged *seventeen pounds in liquids and solids*, and his dinner about *four pounds* of solid cooked meat, *seven pounds* of bread and vegetables, and *three pounds* of porter. On the evening of the same day he would eat *seventeen dozen* of oysters, with bread, butter, and porter to match, and with all this enjoyed for many years the most perfect health. His digestive powers were so rapid that the beginning of his meal was digested and out of his stomach before the latter part was finished, which alone would account for his taking such large quantities of food at each meal. Soon after he had retired to rest hunger again attacked him, and he was therefore obliged to have at his bedside the means of satisfying it. Notwithstanding this voracious demand for food, and which he so amply satisfied, he was not over corpulent ; nor was he otherwise than in excellent health and spirits at all times, and very active in the discharge of his duties. This condition may be readily accounted for by the rapidity of his digestive powers, and the diarrhoea which carried off the food almost as soon as he had taken it.

LEUCORRHŒA. This is an aggravated secretion of a thick white uninfectious fluid, which comes from the inner surface of the vagina and of the uterine cavity. Its colour changes according to the age, standing, and the various alterations to which those parts are subject. It is seen in female infants and children as well as in those at the age of puberty and middle life, and it is only seen in them from the action of cold, or for the want of attention to cleanliness by those domestics who have their management.

Among the lower classes of female children it is a very common affection, and often leads to the supposition of its being produced by immoral associations.

The lining surface of the vagina and uterus at all times give off a fluid secretion of a similar kind, and particularly about puberty, for natural purposes. This fluid keeps the membrane and the secreting glands around in a state of healthy and active preparation for future purposes. When this secretion is increased in quantity beyond what is required for natural purposes, it then becomes a disease which requires the greatest attention, as it often leads to the production of morbid changes in the pulmonary organs.

There can be no doubt that the principal portion of the discharge comes from the mucous membrane of the vagina, in consequence of its

great extent of surface. That which comes from the uterus of an unimpregnated female must be very inconsiderable, although the contrary has been asserted; and there can be no difficulty in coming to this conclusion when it is considered that the cavity of the uterus so situate, is only capacious enough to contain from *one drachm to two drachms* of fluid; such being the case there must be a very limited surface for a secretion of the kind in question to come from. This fact being established the case can the more easily be brought under treatment by local applications, than it could had the cavity of the unimpregnated uterus been otherwise extended.

When infants and children are the subjects of leucorrhœa they cannot be managed by local treatment, in consequence of the undeveloped condition of the vagina, therefore, cleanly applications, nourishing diet, and tonic medicines will in a little time restore the canal to its proper secreting quantities.

When girls arrive at the menstrual period they very often have leucorrhœa before the appearance of the catamenia, and when the menstrual functions have been established the disease often continues, but in much less quantity during the menstruation than before, and when that secretion has disappeared the leucorrhœa returns, and acts upon the system in proportion to the quantity secreted.

A vast majority of females in every class have this disease more or less, and where the constitution is weak, and the countenance blanched there is sure to be leucorrhœa existing, and at the same time making terrible inroads upon the system.

The treatment of leucorrhœa in young females should be by bringing lead, zinc, or the nitrate of silver, particularly the latter, to bear upon the morbid surfaces, and this can be best done by an instrument constructed by myself, and made by Weiss in the Strand, and which I am ready to show to any gentleman in the profession, who would desire to see the particulars of its construction. I know not any instrument to equal it in the power which it has in forcing liquids upon any part of the vaginal cavity; it has often saved me many weeks of trouble in the cure of cases of this sort.

The excited membranes should be kept exceedingly quiet, and not disturbed in any way whatever except for mechanical treatment, and to do this it will be necessary to avoid either walking or horse exercise except in great moderation. Good air, cheerful society, nutritious diet, and tonic medicine, with the other treatment, ought to succeed, provided that pulmonary disease be not too firmly or too extensively established.

It sometimes occurs that after long continued excitement in the vaginal cavity, induration of

the uterus takes place, after which the discharge puts on new appearances, and after a long continued state of induration the organ itself begins to break up, a circumstance which is known by further changes in the appearance of the secretion. The frequent oozings of uterine blood upon the least excitement, pain in the lumbar muscles, general lassitude, loss of appetite, wasting and irritable pulse accompany the case, until at last the wasted and cadaverous features, loss of voice, faltering pulse, and cold clammy skin, betray the fate which hourly awaits the miserable patient.

The uterine diseases which so frequently occur in middle life, and often with such disastrous effects, is often brought about by inattention and neglect in the first instance of the vaginal organs, and it therefore is an important duty to have all changes in those situations which are not compatible with the natural condition considered under professional responsibility.

When the uterus is brought into this irritable state, and then attacked by carcinomatous ulceration, all saline purgatives should be avoided or any others except when absolutely necessary, or until the bowels are made to act of themselves by a proper system of constitutional management. Juicy digestible meats, well boiled vegetables, milk and farinaceous diet, are best adapted

for nutritious purposes. All wines, spirits, and malt beverages should be discontinued, while quietude and rest should be carefully observed. The local treatment should be warm fomentations per rectum, and the same per vaginam, even though there be an inclination to hemorrhage. Light tonic medicines are more suitable for such cases than any of the mercurial or iodine preparations. With these observations I think I have said all which is necessary upon this formidable form of disease. Several operations have been tried in France by the most eminent surgeons there, and some have been tried in England, all of which have failed. The extirpation of the uterus cannot therefore be of any use in saving the patient from the mortal effects which must ensue from uterine carcinomatous disease.

I have had many cases in illustration of the above positions.

LACTATION. The performance of this operation of nature varies considerably in different females, and as it is one so frequent in the human female, and so important in its consequences either for good or evil, it unquestionably requires our highest consideration.

In weakly or delicate constitutions, or in the glandulo-irritable, the secretion of milk is often so enormous that the rest of the system almost

becomes absorbed in it, the features sharpen, the voice whispers ; cough, difficulty of breathing, purulent expectoration, cold perspiration, irritable pulse so rapidly succeed each other, that death is an inevitable consequence before the patient's friends are aware of her being in such a predicament. If all the other circumstances were put together which produce pulmonary disease, they would not equal in number those which may be referred to puberty, gestation and the lacteal secretions which follow parturition, and there are no other cases which come less frequently before those who make lung disease their special practice than such cases.

Glandulo-irritable constitutions present the first dispositions to pulmonary disease at puberty, and during gestation, and the children which are produced are invariably large as the mother is delicate ; this fact showing the loss which she had sustained for the developments of the child in utero. After parturition, lactation goes on in the same ratio and acts upon the system as before described. It must therefore appear from those facts that during gestation, and particularly in the lacteal secretions which follow parturition, the tendency to pulmonary disease can be readily detected by any medical man having common sense and a little practical experience. It is at such times that detection becomes important, as

it prepares the medical man for the management of the case, not only during gestation, but after parturition.

As the works which I have looked at on pulmonary disease, and also on the diseases of the puerperal state, and such as have emanated from the highest authorities, contain but little or nothing regarding such cases, I feel the more bound to impress their greater importance on those who bring such diseases as those of the pulmonary organs under their special consideration.

The impregnated condition brings on changes in the human female, to which her system before was entirely unaccustomed. It is in this state that a feeling of great lassitude comes over her; the digestive functions become deranged, sickness and headache follow; a depression of the circulating system, general emaciation, melancholy, irritable temper, dislike to conversation result from her being in this important condition. It is true that many get over this state without any particular inconvenience being felt; but the many who so suffer require to be carefully followed by proper attention in order to avert the evils which must eventually arise from such situation.

It is in the first stage of gestation, and when the system is so disorganized that the pulmonary

glands become irritable, if not fatally developed. During the latter stages the pulmonary alterations are suspended until parturition has taken place; then it is that the changes are resumed with a frightful activity, until all hope of recovery is abandoned by the medical practitioner who sees her, as well as by those about her who feel interested in her recovery.

When the symptoms of pulmonary disease threaten in the early stage of pregnancy, a well directed system of management will bring the case safely to parturition, and a continuance of the same system will lead to the most satisfactory results when that important event has been properly accomplished.

In those classes of life where the mother suckles her own offspring which is almost every class, most of the cases of pulmonary disease arise from lactation, and many a mother have I seen to persevere in despite of the most earnest warning under a variety of excuses, until at last they were unhappily reduced to that state of exhaustion and disease from which there was no chance of recovery.

In crowded cities and large towns where the habits of the great mass of females are governed by the circumstances which surround them, numbers while performing the duties which are imperatively required by lactation fall into pul-

monary disease, and ultimately perish without any account being taken of the real causes from which such mortality proceeds. The want of the plain and wholesome foods during such process, or the depraved or vicious application of those means which would procure them more than any other causes, urge on those unfortunate events among the classes of persons to whom I have alluded.

This mischief unfortunately does not end with the mother, as it extends to the infants whom they suckle, and numbers of them are annually destroyed from the improper nourishment, which is given to them out of systems, corrupted in the highest degree either by want of due care or by actual depravity.

Among the returns made to the various registrars of death in the department of children are numerous errors as to the causes of death; therefore no reliance whatever can be placed in the statistical reports as far as regards the true causes of death in children; and I might say that similar errors occur, but not to such an extent, in other classes of disease connected with the same reports, most of them being conjectural, or drawn up by persons without a thorough knowledge of the case, or without being confirmed by post-mortem examinations. It is of the utmost importance therefore, that such statis-

tical reports should be accurate, that the minds of medical men should be directed to those causes which commit the greatest havoc upon our population.

The mortality to both mother and child is not so much known as it ought to be, and I might cover very many pages of this book with cases corroborative of the truth of this assertion. I shall, however, give a few cases which will explain my views of treatment, and of the great success which I met with while practising under them, under the most unfavorable circumstances, and when the contrary had occurred where these views were not regarded.

Case. A lady of glandulo-irritable habit engaged me to conduct her through her accouchement, and no more favorable subject could be for phthisis out of gestation, and the lacteal secretions.

For some years before her marriage she had several bleedings from the lungs, also cough, difficulty of breathing, and these upon a weakly constitution left but little expectation in the minds of her friends, of her attaining anything like the middle period of human existence.

Soon after her marriage she became pregnant, and about two months after her pregnancy her features sharpened, her pulse became quick, languor and loss of appetite seized her, and she

had several attacks of uterine hemorrhage. Between her fourth and fifth month she had an attack of hemorrhage, which continued so long that I had but little expectation of her proceeding with her pregnancy, and after this it discontinued up to the time of her confinement. She had a favorable time, and such was her determination that no argument could be employed to prevent her from suckling her infant, a new and important object of her care. All her former symptoms now increased, and purulent expectoration became more abundant; besides being streaked with blood at each ejection, and these appearances so alarmed her that she at length agreed to give up the infant to the care of a wet-nurse.

This great source of exhaustion being now removed I set about abolishing the remainder, after which I put her under the best systems of nutrition, and such medicines of the tonic kind which she was able to take without repugnance, and without producing any of those disagreeable effects upon her stomach, which always renders medicine difficult of administration.

In the course of a few weeks she began to improve in spirits and appearance, and the formidable symptoms before described began to diminish. She went on from time to time under the most favorable changes, until I had left her

perfectly safe from all those dangers which so recently threatened her.

It may be remarked here as a fact of the utmost importance that every female during pregnancy should be carefully watched by persons fully competent to detect symptoms of pulmonary disease in its earliest stages, and the more so, if she be of a glandulo-irritable temperament, or delicately delineated in her general structure. The alterations which take place at the commencement of pregnancy, and indicating pulmonary disease, are generally regarded as the natural consequences of her new situation by the persons about her, who expect that when she is over her accouchement, health and appearances will be restored as before her pregnancy—with these views the greatest dangers are allowed to go on, until at last a medical opinion is taken, which probably declares that the case is beyond the remotest hope of recovery. This untoward opinion astounds beyond belief, and immediately draws them to every expedient for the attainment of her recovery, and after taking all opinions, and trying all medicines, and resorting to every available climate, the patient sinks under the mischief which was first produced in silence or without the least suspicion.

Case. A lady in her fifth pregnancy had all the symptoms of pulmonary disease as described

in the last case. I attended her in all her former confinements, from which she completely recovered under ordinary management. In this her last case she would suckle after her accoucheement, which she thought might be done without difficulty, as upon former occasions. I impressed on her in the most forcible manner the danger of so doing; but she persisted, thinking it unlikely that serious dangers would follow her determination. I then retired; and in a little time she got worse, and becoming sensible of her dangerous situation, she consulted a gentleman well known for treating pulmonary consumption in particular, upon which he gave an opinion, that her recovery was certain. After remaining under his care for some time, and finding herself no better, other lung practitioners were consulted, who treated her with no better success; for she died of pulmonary consumption in a few months after I had first warned her of the danger into which she was voluntarily running.

This case was lost entirely through the obstinacy of the patient in the first instance, and in the next for the want of proper skill in those gentlemen who were consulted, none of whom were in any way acquainted from their own experience in the consequences of lactation upon delicate constitutions, and especially those of the glandulo-irritable temperaments.

Case. The symptoms of this case did not show themselves until after some weeks of lactation; it was then that I first saw her. The lady was in her twenty-third year, and of a pale, sickly, and glandulo-irritable habit, and was then suckling for a period of twelve weeks or thereabout, a female infant, who from its robust appearance was sufficient to exhaust a much stronger person. She consulted me for a loss of appetite and cough, which had been coming on for some time. By auscultation I found the respiratory murmur natural, and the heart's action to be regular, and so favorable was her case in other respects, there could be no doubt of her getting over the dangers which so fatally threatened if she would faithfully obey my directions. The accumulation of milk in both mammæ was enormous, so much so, that part of her dress was constantly being soaked in the fluid, which was so frequently pouring from her. It was under this copious drain from her system, that her constitution was fast giving way, and it was therefore this point upon which my first energies were to be directed, and to this end I recommended a wet-nurse for the infant, with the intention of immediately abolishing the lacteal secretion, and ordered diets of the most nutritious kind, and easy of digestion, with cool air and little physical exertion, and the moderate

use of tonie medicine. She then retired; after which I heard nothing of her for several weeks when she called upon me again. Everything which I had recommended was done except putting the infant under the care of a wet-nurse, and this part of my advice she was advised to neglect, under the authority of another practitioner of the pulmonary school, and particularly as she had bleeding from the lungs. Other lung practitioners were as a matter of course consulted, and they excited her hopes, and applied new methods of treatment, until by the time of her second visit to me all my hopes of her recovery had vanished. Peetoriloquy, large purulent expectorations tinged with blood, weak and irritable pulse, total loss of appetite, free perspiration, absorption of nitrogenous depositions, whispering voice and utter exhaustion, declared the case for a fatal termination at no distant period. After this she went into the country, and died a martyr to her affection for her only child, whom she would suckle under any circumstances, notwithstanding the timely warning which I had given her.

Case. The subject of this case was attacked the fourth time of gestation with cough, difficulty of breathing, purulent expectoration, wasting and irritable pulse. I recommended her to take nutriment from fresh meat and vegetables, cool air,

a large airy bedroom for sleep and mild tonic medicines. She went on to parturition, having rather improved than otherwise; but after that all her symptoms increased to a dangerous extent. Pulse was now at one hundred and twenty, weak, small and irritable, accompanied with bleedings from the lungs, purulent expectoration, and copious lacteal secretions, all of which produced the greatest exhaustion. She had suckled her former children without disadvantage, and intended to do so this time, until I had warned her of the great danger of so doing. I advised her to do the same in every respect as I recommended in the last case, which she did to every particular, and after a few weeks she perceptibly improved, all her dangers disappeared by degrees, and she was ultimately restored to health, much to the gratification of her family and the benefit of her children. She was since confined, suckled her infant, and is at the present time in good health and condition. During her illness she had several attacks of diarrhœa, which I invariably removed with chalk and opium, and cold drinks. By closing all the avenues through which her system might be exhausted, and introducing as much nutriment as she could bear, I was enabled to secure her against the formidable dangers with which she was threatened. I might readily extend my lactation cases in illustration

until they became tiresome to the reader. My principles of practice have been taken from out of twelve hundred cases of midwifery which were attended by myself; besides out of many others which came before me in the course of my practice, and I again repeat that gestation and lactation tend to the development of pulmonary consumption more than all other circumstances together, and that the greatest attention should be directed to those processes in the human female, by every practitioner who may be engaged in the midwifery department of medical practice.

MECHANICAL INJURIES—EXTERNAL. When burns, scalds, wounds, bruises, or other such external injuries happen in a bad constitution, or in a glandulo-irritable habit, so as to degenerate into an extensive sloughing, or secreting surface, the loss thus sustained by the system will ultimately bring on pulmonary disease, if it be not so altered by constitutional management as to change the disposition from the irritable to the quiescent condition, by which the morbid surfaces might be brought into healthy actions. In the treatment of inflammatory disease with children in which a blister has been applied, the surface under the blister will sometimes slough, and go on so in despite of every mode

of treatment which could ordinarily be employed by the medical practitioner to alter such dispositions. These cases have come before me in the early part of my practice, and as I have seen many of them with other practitioners, determined me to abandon the application of blisters in the inflammatory diseases of children, and particularly in those of the poorer classes, and to employ instead for counter-irritation, warm baths, emetics, purgatives, and starving, as better substitutes, or as being more easy, safe, and speedy methods for subduing among them those actions which so often lead to the induction of glandular disease.

I have also known the vaccine virus when applied to the arms of infants and children, to act as a mechanical injury from the vaccine pustule running into a sloughing sore, and so make dreadful havoc upon the arm; and at the same time produce violent constitutional disturbance, which will occasionally end in the development of mesenteric or of pulmonary disease.

The previously bad condition of the system in these cases is the real cause of the mischief, and before a blister or the vaccine virus is applied it should be understood and regulated before hand, so that such serious consequences to the little patient should be avoided.

Leeches, mustard irritants, and the feculent

excretions of infants being allowed to remain upon the napkin, and in contact with the skin, often produce great local mischief, which afterwards leads to violent constitutional disturbance, the continuance of which will frequently originate mesenteric or pulmonary disease.

Gentlemen who have practised in every department of the profession, and who have had the advantage of long experience, must be familiar with the great mischief which often arises from the several circumstances to which I have just now alluded; therefore I need not call their attention to the subject. But young and ardent practitioners should have their attention directed to the facts of such cases being in existence, that they might be prepared to know them when they come, and to treat them according to the principles which I recommended in the course of this work.

MECHANICAL INJURIES—INTERNAL. All metallic particles arising from manual operations, such as needle pointing, fork grinding, knife and razor grinding, or any operations where metallic particles float about or are suspended in the air, in which the operator is placed, so as they are drawn in by the respiratory organs, produce internal mechanical irritation, the continuance of which will most undoubtedly, as they often do,

produce some or other of the various forms of pulmonary consumption, unless the persons are removed before organic changes are established in the mucous surfaces of the air-passages.

The first effects are—cough, to get rid of the foreign particles; this produces nausea, derangement of the digestive functions follow, then loss of appetite, wasting, and laryngeal phthisis or tubercular ulceration, ending in the destruction of the operator. Glandulo-irritable subjects get speedily affected by exposure to their mechanical employments.

Stone - cutters, millers, brush - makers, furdressers, feather-dressers, snuff-grinders, and all persons who conduct their pursuits in an atmosphere charged with flocculi are liable to pulmonary irritation from such causes, and which, if continued, will lead to glandular ulceration and death.

Laboratory men, or persons engaged in the manufacture of acids, gases, ammonia, annatto, soaps, tallows into stearine, or in any chemical process where pungent gases or vapours are evolved around the operator, will lead to similar effects and consequences.

Remove the operators before the mischief is done from their several employments, and have them put under proper treatment, and then recovery is certain.

TEMPERATURE. Metal founders, glass-makers, gas manufacturers, stokers, bakers, or any persons who work in warm artificial temperatures, are almost sure to be victims, sooner or later, to pulmonary consumption. The loss by the skin is so great that they might be compared to filtering machines, and such loss being seldom made up by foods or drinks, the workmen perish at an early age.

The deaths arising from working in heated atmospheres are very numerous, and are often concealed from statistical observation. Persons who follow such occupations should watch themselves with great caution; and so regulate their employments as to avoid a continued heat from acting upon their systems in the course of their operations.

CLIMATE. In warm climates our armies are exposed to an enormous amount of disease, and more particularly to that of the pulmonary character. The effects produced depend upon the latitude where the men are situate, upon their general habits, and upon the amount of physical exertion which they are called upon to make. Supposing the habits and labours of the men to be the same upon every service and climate, and that in warm climates the mortality be excessive, we then can have no difficulty in finding out the principal source of the destruction.

A regiment of one thousand young men and officers, the very perfection of our rural and gentry population, being sent out to the East Indies will require to be renewed every twelve years; a large proportion of the deaths being from pulmonary disease.

The same amount of men and officers sent to the West Coast of Africa, will require to be renewed once in every seven years, the deaths from pulmonary disease being in an equal proportion.

One thousand soldiers serving in the West Indies, will require to be renewed as often, and in some places in the government every five years. The climate here exercises an awful influence upon men and officers, few of whom ever return to their native country on account of the multitude of deaths, which occur from the effects of the climate bringing on disease principally of the pulmonary character.

It cannot be of much use to speak of the treatment here as regards the application of medicine, as it must be but too evident, that a return home would be the only useful measure, and this would be almost impossible as our colonies require so much military protection.

As a contrast to the great military losses just now named, I may mention others of our colonies where the men and officers live longer than when

upon home service. Malta, Gibraltar, the Bermudas, and Canada are more favorable to health than the home service, and particularly the latter, where one thousand men will require renewal in about eighty years, whilst in London they would require renewal in about fifty years; and in the agricultural districts of England, Ireland, and Scotland, reparation will be required in a still shorter time.

In hot climates the loss to the system by cutaneous evaporation is immense, and when military service or active drill are added, this soon leads to a general break up in the constitutional energies, after which weakness, wasting, loss of appetite succeed, and thus it is, that pulmonary or liver disease is produced in the constitutions of military men, however healthy and robust they may be, when they have arrived at such places of duty, and however careful they may be in their habits when they are located there. Duties must be performed, and discipline kept up, particularly in foreign service, although it be at the expense of the youngest and most manly of our population.

BLOOD, (Indications by the.) The doctrines which have been long taught, and by which the treatment of inflammation is regulated, are not only fallacious in themselves to a high degree,

but fraught with the utmost danger to many patients, and disappointment to medical practitioners. To show that the buffing and cupping of the blood are not decided proofs of active inflammation, I need only report the following as experimental facts. Submit a young man whose pulse is regular, tongue clean, appetite good, and having every other indication of perfect health to bloodletting, the blood so taken will soon set upon standing, and the fibrine will be found much larger in proportion than the serum, and without buff or cup, while the latter is thick, albuminous, and scanty. This state of the blood is consonant with perfect health. If he lose more blood, or be underdieteted or overworked, and then bled, the blood will buff and cup, and the serum will be thin and watery, besides being increased in quantity, while the fibrine is diminished. In this state no appearance whatever of inflammation can be discovered in the existence of any one single symptom of what is considered to be a test of the inflammatory kind. The blood of a pregnant woman will exhibit the same appearances,—not that she labours under inflammatory actions of any description; but that her system has been lowered from the healthy standard by the peculiar determinations which take place from herself to the fœtus for the purpose of its development. If the above-mentioned young

man be suddenly and severely attacked with acute inflammation, and lose blood immediately, such blood will not buff nor cup on that bloodletting, but will do so on the second or third, on account of the deviation from the healthy condition which had taken place since the beginning of the attack. An inflammatory attack of a few days' standing will invariably buff and cup the blood, not because the inflammation continues, but that it *had* created a change in the system from the healthy standard. After the inflammation has entirely subsided, the blood will cup and buff from similar changes. It is the buffed and cupped appearance of the blood under such circumstances, that has often urged on further bloodletting, and with the most deadly effects, under the plea of the extension of inflammation, and the effects are more calamitous when such practice is followed up in constitutions already predisposed to diseases of the respiratory organs. If at the onset of a violent attack of inflammation a previously healthy young person lose blood, the absence of the buff and cup is no rule that such inflammation does not exist; therefore, if active antiphlogistic treatment be not followed up, the worst consequences may be expected to succeed such assaults upon the system. Any practitioner who had himself performed many venesections in the course of an extensive practice, must have observed the

different proportions of buff and cup which are to be seen in the area of a circle of fibrine; indeed, the gradations or changes are so regular that the state of the system may be accurately measured from them. Thousands of cases might have been saved had not bloodletting, and other parts of the antiphlogistic system been employed in the treatment of consumptive cases; on the contrary, had the various outlets through which the system had been allowed to waste, been closed, and nutrition carefully introduced, instead of thousands of deaths, we should have thousands of recoveries, and medical science in this department of practice would have been a blessing to mankind, instead of being as it now is a horror and a misery.

If blood be taken from persons who feel in perfect health, and that it buffs and cups, such appearances are evidence of their being below the standard of health. This fact is important to know in the treatment of accidents; and in the practice of operative surgery; for should such persons be further reduced by bloodletting and the starving system on such grounds, their cases are sure to do badly both for the patient and for the surgeon. If the opposite treatment be pursued, recovery is certain under ordinary circumstances, while recovery in the other case would be more from chance or good

fortune than from the skill and science of the practitioner.

In these phenomena I have had ample experience from the numbers of persons bled by me under sudden accidents, and before the constitution had time to be changed from the various circumstances which generally follow them.

ATROPHY OF THE LUNGS. Atrophy or wasting of the lungs often arises from the absorption of the permanent air in the cell by surrounding inflammation, upon which the mucous surfaces adhere so closely that no readmission of air within them can be effected. The lungs so put out of use waste, and it not unfrequently happens that life is carried on for many years under such alteration of structure. Persons so affected should lead a quiet and discreet life, or otherwise they will suffer severely in consequences if they do not do so.

It should be recollected that in proportion as the lungs are withered, so will the respiratory functions be thrown upon the remaining portion; therefore any derangement in these operations would greatly peril the lives of those so affected.

It should also be recollected that as the lungs are withered or consolidated, so as to be put out of use, so will the action of the heart be regulated; the heart under such circumstances can-

not send the quantity of blood to the lungs which they were destined to contain ; therefore, such portion as cannot be admitted to them remains in the other vessels as well as in the heart itself, which, by its powerful contractions, not only dilates itself and brings on enlargement, but dilates the other vessels in their weaker parts, and so bring on aneurysm, which if once established, will sooner or later suddenly terminate in results destructive to the lives of those who are subject to such organic changes.

In concluding this part of my subject, I think it not too much to say again what I have already said in substance in other parts of this work, that impression might be the greater upon the minds of those young men who are now pursuing their studies preparatory to entering that profession of which I am an humble member, besides upon those of my other readers ; namely, that while the lungs are undergoing all the changes which constitute the various stages of pulmonary consumption, the stomach frequently remains but little impaired ; indeed I might say that I have seen instances where the appetite in many of the advanced stages was almost voracious. It is clear then that, with such advantages in favour of the patient, recovery ought to be looked upon with great hope, if not with certainty, even though

the morbid changes in the pulmonary structures had made considerable progress.

Almost all the cases which I have had under my care, and where the stethoscope with other means revealed the existence of cavities, and where the integrity of the appetite was yet preserved, got well by putting them under a judicious system of nutrition, combined with such medicines as tend to give vigour to the system and soothe constitutional irritation, and with such pure air as is known to be fit for admission into the respiratory organs.

The utter want of knowledge among those of the older practitioners in the principles and management of pulmonary disease, has no doubt led to an immense sacrifice of human life, as it is well known that a family can hardly be found to exist, and particularly among the population of London, and others of our cities, who have not been compelled to surrender some or other of its members to its ravaging influence; and I leave it to the young gentlemen of the present day who are now laying in stores of modern knowledge, and who are to be the future practitioners of this country, to examine for themselves practically the principles which I have for twenty-five years maintained and practised with the utmost success. It is my opinion that con-

sumption might be almost obliterated as a disease; and I make no doubt that before many years are past, it will be but little known among the higher classes, and very much reduced among those in the humbler stations, through the aid of those new facts in medical science which are now pervading every civilized country.

ASTHMA.

ASTHMA. Asthma is a Greek word, and in English means a puffing of the breath, a short-windedness, or breathing with difficulty. It is therefore a word having a wide and undetermined signification, as it does not define the parts or textures which happen to be the seat of what is considered to be asthmatic disease. Most of the other Greek names for diseases which are retained in our nosological systems are equally obscure and inapplicable; and thus it is that students meet with so many difficulties in the study of medicine and its collateral branches; such complexities should therefore be abolished, and the textures or parts affected should be made the grounds for giving names to the several diseases.

Characters. The subject of asthma is so peculiar about the thoracic structure, as to be easily recognized by the medical practitioner. The shoulders drawn up and forward, and giving the chest a narrow frontage, a peculiar manner

of voice and of respiration, a bright and anxious eye, a pale visage, an attenuated frame, and about middle life and upwards define the appearance of a man who is an habitual sufferer from spasmodic asthma. A difference in the constitution of individuals will sometimes make slight yet important variations in the disease; as for instance, one man's frame may be wasted and his countenance blanched, whilst that of another may be vigorous and plethoric: treatment must therefore vary accordingly.

BEGINNING OF ASTHMA. Asthma begins in middle life, and more frequently affects men than women. It appears to be coincident with a great change or alteration in the system, as it sets in about the beginning of the downward progress of life. It attacks at certain seasons of the year, and particularly towards the latter end of the summer, and often in the most sudden and unexpected manner. During the attack the patient is obliged to seek the easiest possible position for respiration, which is generally the upright, in which he remains until some great alleviation in the symptoms relieves him. The breathing now becomes short, frequent, and laborious, accompanied with a loud wheezing noise, with heaviness and stupor about the head; and every now and then he gasps and struggles

for his very existence, during which the eyes appear projecting from their sockets, and full of imploring anxiety for relief; then a cold clammy perspiration freely covers the whole surface of the body, the pulse sinks into a small and feeble stroke, the voice trembling, nervous, and agitated, with an entire depression of the rest of the vital powers, in which state he remains between hope and fear, until the continuance of a profuse perspiration gives him another hope for an extended existence. The attack most generally commences in the evening, and lasts until midnight, and often towards the morning; and after it has exhausted itself to some extent, he remains comparatively easy until about the same time the following evening, when the scene is repeated with similar sufferings. During these terrible attacks the patient secretes nothing from the lining membrane of the larynx, the aperture and surrounding parts of which seem as if they were the seat of the mischief; and when the patient recovers, he generally does so without any particular secretion from any of the adjoining mucous surfaces. Although the patient had not complained of any ill health at the time of the seizure, which is most frequently the case, his constitution rapidly gives way to the attack, his tongue gets furred, enlarged and clammy, his stomach and bowels are painfully distended with

flatus, and the urine deposits the lithate of ammonia in considerable quantities.

All subsequent attacks of asthma appear under corresponding representations.

Cause. Now it may be asked what is the remote cause of these frequent and terrible attacks, what structural alterations have occurred in the system to excite or produce them? The immediate causes are various, and are such as to be too evident to be misunderstood; but as to the remote causes there are no two writers who agree in the main upon them. I have said that it generally commences in the beginning of the downhill of life; it follows therefore that no advantage can be taken by *post-mortem* examination to settle the question of remote causes. So far, therefore, are they wrapped up in doubt and difficulty, that our opinions must as yet remain as conjectural. An altered condition of the nervous system is supposed to be the remote cause of spasmodic asthma. This, however, is a very vague hypothesis. There can be no doubt that if any set of nerves, by any change in their structure, become more irritable, and that irritating agents act upon them, they get excited, and they again excite the muscles until a convulsive action of the whole is produced, which continues to harass the system in the most oppressive manner for some time, until a counter-

action is produced either by the general disturbance itself, or by artificial contrivances, by which they again settle down into a quiescent condition. In such cases as these, all irritating agents should be avoided, whether in diet, air, or exercise, or under any known or supposed cause.

I have known many asthmatics to have lived out the natural term of their existence, when their cases were uncombined with the more formidable organic changes. To effect this point, regulation in medicine, in diet, in air, and in exercise, are the great objects to be relied upon.

ASTHMA FROM MENTAL EMOTION. I have known fits of asthma to have been brought on by violent emotion of the mind in persons predisposed to that disease. Out of many cases which I have seen, the following is the most remarkable, as occurring in a young man who had not been before the subject of asthma under any circumstance.

Case. A tall powerful young man of an asthmatic structure was suddenly in possession of an officer of the Metropolitan Police Force, on suspicion of being connected with a very extensive burglary. He was known to the officers as being connected also with an affair which occurred a few years previously at Moulsey

Hurst, for which one of his companions was executed. In this case he was discharged by the late Sir R. Birnie upon a preliminary hearing, for want of evidence. In a few minutes after his liberation sufficient testimony arrived to identify and convict him; it was the same identification and testimony which decided the fate of his unfortunate companion. He evaded the officers of police, until he supposed that the material evidence against him had disappeared or was dead, after which he returned to his former habits. Upon his arrest he was for some time fixed to the place where he stood, and from which he had not power to move in consequence, as he said, of a heavy weight and oppression which lay at his chest. He was eventually brought to the station-house upon which an officer was despatched for my attendance. Upon my visiting him in his cell I saw him labouring under all the symptoms of spasmodic asthma, and a more fearful attack I never witnessed. He breathed with a loud wheezing noise, and so distressed was he that his eyes projected from their sockets. For some time he gasped and struggled for existence, and with his looks frequently implored my assistance. The surface of his body was covered with a cold and damp moisture, whilst his pulse was weak, wiry, and intermitting, all of which symptoms would under

other circumstances be tantamount to an immediate dissolution. I sent him some morphia, which he took, and after which he was speedily relieved, and towards the morning he was comparatively restored to his former condition.

ASTHMA FROM CELLULAR OR ATMOSPHERIC EXPANSION. At birth the lungs are rapidly inflated with atmospheric air, after which they continue so more or less during the remainder of vital existence, and even after death; and the air so introduced has two separate conditions, which are the permanent and fugitive. The whole of the air which is taken in at the completion of the respiratory process in the newborn infant is not again returned to the atmosphere, as a large portion of it is permanently retained. This fact may be ascertained by injecting the lungs of a stillborn infant with atmospheric air; the air so projected cannot be pressed back again, owing to the valvular structure of the air-cells. If the lungs are now cut into several small pieces, and one of them be pressed with all the power of the hand, it does not discharge the air from its cavities; thus showing the valvular structure of the air-cells, which forcibly incarcerates within them a portion of the inspired air for the necessary purposes of vitality. In death, the same air-cells, unless

obliterated by organic disease, retain the air under the same circumstances.

Elderly persons whose air-cells have become distended beyond their natural dimensions are frequently troubled by sudden asthmatic seizures, which arise from expansion of the incarcerated air under the influences of atmospheric changes. Some writers consider these cases under the term of dry asthma.

Like the permanent air of the alimentary canal is the permanent air of the lungs, subject to expansion and contraction under the variations of temperature, which occur at particular seasons, and it frequently happens that distension of the stomach and bowels from flatus, will be coincident with the same distension of the air-cells which produces all the difficulties as they appear under the form of asthmatic mischief.

The pressure of the air in the first instance is often relieved through the natural outlets, or by the administration of such medicines as can condense or absorb it, while the air of the latter is suddenly condensed by atmospheric change, or relieved by the slow process of absorption.

Asthmatics of this description often suffer long and severely, and particularly when we consider the increased rigidity of the surrounding parts consequent upon old age; such cases, therefore,

require great constitutional management in order to diminish the severity and continuance of such attacks.

The fugitive air is constantly removing the incarcerated more or less at every inspiration, and it is in the cells themselves that all the great changes occur which are necessary to our vitality, or to the laws of animal existence.

It will be seen from the foregoing observations, that the capacity of the thorax cannot be measured from the usual quantity of air which is taken in at every inspiration: this is an important fact in a physiological and practical point of view. The fact of a large portion of air being already in the lungs, and elevated to the temperature of the blood, and in other respects prepared, prevents many serious if not alarming difficulties from occurring in the process of respiration. If a cold current of air were to pass directly into all the air cavities without being previously diluted and modified by the air which the lungs already contain, the most violent and suffocative actions would result, or probably produce immediate death by exposing so large an internal and irritable surface to the sudden action of cold air; and thus it is that air is already in the lungs to regulate and modify the introduction of the external air upon its entrance into the respiratory cavities.

As the cold air is drawn in at every inspiration it passes through a current of air expanded by the heat of the system, and from its greater density has the power of forcing out the rarefied and decomposed air, which should no longer remain within the cellular spaces; these operations can only be interrupted by undue dilatation of the cells, or by other organic alterations of an equally serious character.

EMPHYSEMA OF THE LUNGS. This emphysema may be vesicular or interlobular. The vesicles are much dilated, whereby they contain more air than in the normal state. Their size varies from that of a millet-seed to a nut. The larger of these dilated cells are produced by a rupture of the partitions or septa separating the cells. Sometimes, however, no rupture is necessary to produce the largest of these vesicles, as they seem frequently to owe their increased size to simple enlargement of a single vesicle. On opening the chest the lung is observed not to collapse, but on the contrary to expand, and extend beyond the walls of the thorax, as if too large for its cavity.

As long as the vesicles remain unruptured, the disease consists in an excessive and unnatural distension of the air-cells, the air being still restrained within its natural cavities; but when

distension goes on increasing, the air-cells are eventually ruptured in certain places, and the air being extravasated distends the surrounding cellular tissue of the lungs.

I fully agree with Laennec in thinking that pulmonary emphysema consists essentially in dilatation of the air-cells, and that the extravasation of the air on the surface of the lungs, and which constitutes *interlobular emphysema*, is but a posterior effect, and by no means necessary to produce the symptoms of *asthma*. I know that in this view of the matter I disagree with Professor Andral who considers the state described by Laennec as mere hypertrophy or atrophy of the lungs, and who recognizes no other species of pulmonary emphysema but that which consists in ruptured vesicles, and constitutes what has been called *interlobular emphysema*.

Symptoms. The leading symptoms are habitual dyspnœa—this dyspnœa is permanent, but is aggravated by paroxysms which are irregular both in the time of their return, and also in their duration; it is increased by all those causes which usually increase dyspnœa under very ordinary circumstances, such as flatulence of the stomach and bowels, mental anxiety, violent bodily exertion, ascending an elevated place, the occurrence of catarrh. The movements of the chest are irregular and habitually unequal; in-

spiration is short, high, and quick, whilst the expiration is slow and imperfect; there is in fact a decided difference in the duration of the two movements. During the fits the respiration becomes convulsive; when the disease is violent, the skin usually assumes a dull earthy hue, the lips become violet, thick, and swollen, habitual cough, sometimes unfrequent and dry, sometimes attended with a trifling expectoration of a grayish and transparent matter; the fits of coughing come on at irregular intervals. If the affection be confined to one lung, or is much more severe in one than in the other, the side most affected is obviously larger than the other; its intercostal spaces are wider, and it gives out a clearer sound on percussion over the entire chest; the thorax also exhibits an almost round and globular outline swelling out before and behind.

PHYSICAL SIGNS. The respiratory sound is inaudible over the greater part of the chest, and in the points where it is audible it is very feeble, whilst, at the same time, over these same parts the sound on percussion is very, nay, abnormally clear and loud; there is heard at the same time a slight sibilous rhonchus, such as that heard in dry catarrh.

DIAGNOSIS. The diseases with which emphy-

sema of the lung may be confounded are pulmonary catarrh and pneumo-thorax. In catarrh the suspension of respiration in any particular point is but of short duration; and when it returns it is strong, and it is constantly attended by a sonorous or sibilous râle; in emphysema the suspension of the respiration in any part may be long continued or even permanent, and when it is restored, the respiratory murmur continues feeble; again, in catarrh, the movements of the ribs continue free, the respiration does not present a constant irregularity, and the chest retains its normal sound and volume.

Causes. Extensive and severe dry catarrh—long retention of the breath, as in the case of persons who play on wind instruments; how this latter cause acts in producing the disease may be readily understood from what we have said of its pathology—spasmodic stricture of the bronchi. Many of those who have written on asthma have set down heart diseases, more especially hypertrophy or dilatation of the organ, as a frequent occasional cause. Long experience and repeated *post-mortem* examinations have satisfied me that the cardiac disease is rather the consequence than the cause, and is brought on by the constant and violent efforts which the patient is obliged to make during respiration. Aneurysms of the arch of the aorta may also act as a cause of asthma.

NERVOUS ASTHMA. There is a form of asthma which may be called nervous. This was formerly admitted hypothetically than positively proved, until Reissussen succeeded in proving the presence of muscular fibres in the bronchi. The *anatomical characters* are hypertrophy with dilatation of the ventricles of the heart, ossification of the valves, aortic aneurysm, thickening and obstruction of the bronchial mucous membrane, and ossification of the large vessels of the heart.

Treatment. In the treatment of asthma everything must depend upon circumstances, that is, whether it be simple or combined, and whether the attack be mild or severe, and also upon the age, strength, or other contingencies.

I was intimately acquainted with a very eminent physician who felt the first symptom of asthma upon him when he was nearly forty years of age. When I was a very young man I was often deputed to meet him in consultation, and I well recollect the number of times he was obliged to rest upon his journey from the bottom of the stairs to the bed-room of the invalid before it could be reached by him; his asthmatic breathing being powerfully excited upon the least bodily exertion. This disease never left him, although it used to be greatly modified or increased in its actions by atmospheric influence. In all his dietetic habits he was exceedingly

regular and moderate, besides having carefully avoided all kinds of alcoholic solutions. By these means he kept himself spare, so much so, that he existed almost in the condition of a skeleton. He used all the means he could to live in a uniform temperature, which he endeavoured to regulate at home with the utmost precision, and when he went abroad it was invariably in his carriage, the temperature of which used to be regulated by introducing within it a person of healthy massive formation, to accompany him in his journeys when the atmosphere was cold and chilling, and dispense with his services when it was more genial in its influences. His medical management of himself was very limited, as it was principally confined to a little watery extract of opium, which he took occasionally to allay nervous agitation. In this way he went on for many years, until at last he was carried off between his eightieth and ninetieth year.

When the countenance presents a plethoric and purple aspect, blood may be taken in small quantities at a time, and in a small stream from the arm so as not to induce syncope; then make local bleedings if necessary, and avoid the application of blisters or any other counter-irritants as they seldom do anything but mischief; then further reduce, if necessary, by oleaginous or

other mild purgatives, except those of the saline class. Light vegetable drinks, tonic medicine, and appropriate diet will succeed in most cases, except when they are combined with dangerous organic changes in the connecting structures.

When neither plethora exists, nor can any purple hue in the countenance be observed, then the treatment should be without any kind of bloodletting; but dependence must be had in a great measure on attention to the alimentary canal, to dietetics, and to a due regulation of temperature. The state of the skin should be properly looked to, and if dry and rough, diaphoretics and warmth would create a determination to its surface, by which the pressure within might be greatly, if not immediately, alleviated.

The urinary secretion should be also examined, and according to its appearance and impregnations the treatment must be regulated.

The acetate of morphia may be of some use in tranquillizing nervous irritability, which is so often a distinguishing feature in some of the attacks of asthma; but to resort to it frequently, or assume its use as a confirmed habit, is a practice which cannot be too strongly condemned. With regard to the remainder of the narcotics, I think they do more harm than good, not only in asthma, but in every other form of disease; for at least they can only act by prostrating

nervous feeling, by which pain might be for a moment suspended or alleviated, without at all preventing or removing any of those structural alterations which are the immediate cause of disease.

All drugs which are denominated antispasmodic can be of little or no use in the treatment of asthma, inasmuch as they cannot be made to reach by the alimentary canal those structures which might be considered to be the seat of that complaint. I object also to the use of narcotic enemata, for the same reason, and I can say that I never could trace any benefit whatever from them when they were used by me in any case of asthma.

When it is considered that asthma may be congenital, or that it is a disease which must appear sooner or later in some particular constitutions, the great object should be to adhere to strict systems of dietetic discipline, to avoid all physical exertion, and live in a uniform temperature if possible, as it is only by such government that persons can expect to retard those progressive alterations which, when ultimately established, constitute the disease, and when such has been confirmed, the same system of management would apply for the prevention of an aggravation of the asthmatic mischief.

Should there be indications of effusion or an

oedematous condition of any portion of the pulmonary apparatus, the bloodletting or counter-irritants in any shape would hurry on the malady towards a fatal termination.

Emetics are at all times dangerous remedies, as the impetus of their action cannot be always properly regulated. The diseases of the vascular system are frequently so obscure, or so hidden from the observation of the most enlightened and experienced practitioners, that it must make the administration of emetics in many cases a most dangerous practice. Their operation may either induce apoplexy, aneurysm, or force an aneurysmal sac, give rise to hernia, or rupture an internal abscess, or exert some other mischief upon the system which might never be discovered. When any of the above events occur, the mischief does not always show itself at the time so as to fix its cause; therefore, many such dangers are produced without the real cause being ever discovered. I have for many years carefully excluded them from my practice in most cases, and without at all diminishing the amount of my success in the treatment of those diseases where their use have become a settled law in medical science.

When the attacks of asthma come on from cold, and that inflammation has settled in the superior portion of the larynx, care should be

taken to encourage expectoration, and not to retard it; in such cases I have often seen but little good experienced by the patient until the inflamed surface was relieved by a free expectoration,—a circumstance which easily proves that attacks of asthma are often produced by a cold falling upon some part or other of the lining membrane of the windpipe, and more particularly upon its upper portion. In such cases bloodletting should not be used, unless the violence of the attack almost impedes the respiratory actions, or otherwise creates such an amount of distress as can hardly be borne by the unfortunate sufferer. When the dyspnœa is being followed by expectoration, bloodletting as a matter of course would be a most improper application. Blood taken from asthmatics often resembles the blood taken from the impregnated human female, which in her is not considered indicative of the existence of inflammation. The buff and cup of the asthmatic blood are not at all criteria of inflammation, but, on the contrary, are so of exhaustion and debility, which circumstances should, therefore, determine the practitioner to be exceedingly cautious in his depletions, or else he may readily do a mischief which no skill or talent could remove or mitigate.

Innumerable exploded remedies, and as many obsolete doctrines are adopted and applied to

asthmatic disease by some very modern writers who have essayed upon its treatment. Among those who do so are to be found men of education and high professional standing, and it appears the more extraordinary, when such practitioners can have neither reason, practical experience, nor modern science to uphold them in such principles.

However numerous such remedies may be, or however respectable the authorities which originated them, there can be only one way of treating asthma, or any other complaint, that is, to find out the seat of the mischief by a knowledge of effects; then to discover the true cause, then to bring your treatment direct upon the deranged or diseased tissues; with these few rules, which can only be learned from practical experience, difficulties can be simplified, success frequently obtained, and, instead of employing a collection of nauseous, useless, and teasing remedies, our great points can be gained by means both simple and successful, as well as agreeable to the taste and feelings of the suffering patient.

Cases. I think it unnecessary to give any cases upon this subject, considering it enough for me to say that all the cases, however various, were treated with the greatest success upon the principles maintained in this work.

HEART AND ITS CONNEXIONS.

THE heart, as a whole, is composed of muscular fibres, blood-vessels, nerves, internal membranes, valvular bodies, cellular tissues, fat, with an outer coat consisting of a *muco-serous* membrane,* all of which are beautifully proportioned to the important duties which they have to perform in the animal structure. Its uses are to receive nutrition from the thoracic-duct with the blood of the subclavian veins, then to pass them by the pulmonary arteries to the lungs, to receive the necessary atmospheric influences, after which they again return by the pulmonary veins to the heart, to be sent by its means to every part of the system for its maintenance. When this organ fails to do this in the most perfect manner, such failure must arise either from malconformation, constitutional derangement, or organic changes in some parts of its structure. The integrity with which the heart's action is intended to be preserved is seen from its situation, where it is on all sides protected by outworks of

* Ordinarily called a fibro-serous membrane.

bone, between which and itself are placed soft and yielding tissues, so as not to interfere with the freedom of its functions. The muscular power is immense for the size of the organ, as in its vibratory actions it can lift a weight of several pounds; such being necessary, when it is considered that by its contractile power it is to send blood to the farthest extremity of the body, and most frequently against the gravitating powers of the blood itself. In order that the circulation of the blood be carried on effectively, besides the necessity of having the heart itself in perfect working order, the vessels in every part where the blood is destined to be sent should be in a perfect condition to receive it; when this is not so, the most serious consequences may be expected to result.

Among the vast portions of mankind all these operations are at first conducted with order and regularity, as nature intended they should be, and continue to act so for many years, until, by necessities or the faults of man himself, or by the natural wear and tear of his system, organic changes are produced, which sooner or later bring about his dissolution.

In middle life the heart enlarges, and the great vessels with it; its muscular fibres become more feeble and relaxed, while the coats of the vessels become more rigid and unyielding. In

old age the same heart often becomes smaller, and the fibres more rigid and condensed, while the coats of its great vessels become ossified. Such are the various changes and alterations which the heart and its great vessels undergo from birth to old age, that they have not been sufficiently defined by the many writers who have hitherto devoted themselves to the subject, so as to have conferred upon medical science those advantages which might be expected from some of them, considering their reputation, and their various opportunities.

How far diseases of the heart might be acquired by an even tenor of life, or by one entirely free from physical exertion, we have not at present any means of knowing from anything like correct data, although we know that most of such diseases are found among those whose whole lives have been entirely devoted to great physical exertion. It is frequently among the high feeding, athletic, and laborious classes that enlargements of the heart and dilatations of the great vessels occur, and there is no difficulty in showing by analogy how readily such may be produced. As the mass of the human structure accumulates, which it does about middle life, the vessels of supply become proportionably larger, and consequently are distended and weakened in their boundaries; and when absorption of these animal

deposits take place after this stage, less blood is required to support the general mass than before, and this occasionally leads to a reaction upon the heart and its immediate vessels, out of which increased dilatation or aneurysm, subsequently results; the pulse becomes slow, weak, and irregular, fearful palpitations ensue, and thus are established organic changes, which require the utmost skill and experience to regulate so as to prolong the life of those who labour under them. All these changes the more readily occur, when it is recollected that the middle or muscular coat of the vessels is absorbed as old age approaches, which deprives them of their elastic powers, and so leads to the formation of aneurysm, by the overpowering force of the heart upon the remaining coats. A very eminent anatomist says, "of all the diseases of the heart we may reckon the dilatation of the aorta a disease more frequent than all the others, and more dreadful, and is more frequent in the decline of life." Although it might not be admitted that *dilatation of the aorta is a disease of the heart*, yet it may be inferred that dilatation of the aorta is more frequent than all the diseases of the heart together, and therefore requires a proportionate amount of attention on the part of the scientific practitioner.

In speaking of diseases of the heart, one of the eminent Bells says, "it is an awful disease; for

every organ, when once deranged, especially if it be one as active as this is, never stops in its course; and this especially ends early or late in some terrible kind of death. Sometimes, increasing in size, it destroys all the surrounding parts and bursts within; sometimes it bursts into the chest, and then the patient drops suddenly down; sometimes into the trachea, and then the cause of the sudden death is known; for the patient, after violent coughings and ejections of blood by the mouth, expires; sometimes it beats its way through the ribs, destroys the vertebræ, affects the spinal marrow, and thus the patient dies a less violent or sudden death. Most frequently, the tumour rises towards the root of the neck, is felt beating there, destroys the sternum, bursts up the ribs, dislocates and throws aside the clavicles, appears at last in the form of a great tumour upon the heart, beating awfully—a dreadful state! and with nothing to keep in the blood but a thin covering of livid skin, which grows continually thinner, till, bursting at last, the patient expires in one gush of blood.”

Notwithstanding that such a disease as dilatation, and then a bursting of the aorta, is so terrible and awfully fatal in its consequences, it is happily not one of very frequent occurrence, and might be more seldom seen if persons would

exert a proper management over themselves. It is admitted to be a disease of old age; therefore, if the first half of life escape from such an one, and the latter half only present a case occasionally, then the positions which I have assumed with regard to their frequency must be admitted. Mostly all the cases of disease of the heart unconnected with any other disease, so far as the signs and symptoms could discover, were those of old age. When such diseases are seen in young persons, they will generally be found as consequences of morbid changes occurring in the lungs, liver, or other viscera, which have refused the usual supply of blood from the heart; the column of blood is therefore thrown back upon that organ and its great vessels, in which many of the diseases of these parts have their origin. The parts of the heart which are diseased are often beyond our comprehension, although we are cognizant by unerring symptoms that organic alterations have been effected. A pulse about seventy, weak, although full in its volume, and losing a stroke in every few seconds, with an occasional flutter or palpitation in the situation of the heart, and which continues without alteration, are among the first appearances of disease of the heart or its great vessels. In such a situation I have known many elderly persons to live for many years, and without any inconve-

nience or depression of spirits, provided they kept to moderate exercise, light diet, and free from all worldly excitements.

A female about *ninety-five* years of age is now under my care, whose pulse has been for many years in this condition, with the fact of her pulse occasionally disappearing for a few seconds, and then returning by strokes scarcely perceptible to the nicest sense of touch, until it finally returns to its full power, after which it again goes on in the same manner, and so it continues for weeks together without any alteration to produce her inconvenience. My attendances upon her are for colds, which she occasionally takes under atmospheric vicissitudes.

The heart is enclosed in a muco-serous bag which normally secretes serum, and by which its motions are facilitated. This bag is called pericardium, from its relative position to the organ which it so surrounds. In cases of acute inflammation it will secrete pus, which is the reason why I call it muco-serous membrane. The diseases of the pericardium will be considered before those of the heart and that of aneurysm.

PERICARDITIS. Pericarditis may be considered in the same way as pleuritis, and may arise from exactly similar circumstances. Its detection will be determined by the situation

of the pain, and the point where the breathing is more difficult. Should these symptoms be found in the situation of the heart, and attended with enough, difficulty of breathing, intermitting pulse, or syncope, there can be no doubt of its nature.

The treatment should be the same as in pleuritis in every respect, considering all the circumstances of age, constitution, and the violence of the attack.

PERICARDIAC ADHESIONS. These cases occur as in adhesive inflammation of the pleuræ; they occur but seldom, and when they do, there is not much room for any kind of treatment.

PERICARDIAC EFFUSION. This is the result of an attack of acute inflammation of that membrane. No operation can be tried here, at least, it has never yet been done, nor ever tried to be done by the most pertinacious and confident practitioners, and before the case could be discovered it would require a refinement in medical tact which is rarely ever witnessed. Such cases as these are generally known after death, and not before. It is about as common an occurrence in plethoric elderly persons as hydrothorax, with less chance of being assisted by any kind of treatment. I have discovered death to have taken

place in elderly persons from attacks of this description in numerous instances by *post-mortem* examinations.

The effused fluid may be one of two kinds, namely, serum and pus. The former is the more common of the two, the latter is of rare occurrence. I saw one case which came on with the most fearful activity and violence, and carried off the patient in a few hours, notwithstanding the most prompt and active measures, under joint opinions, were employed to subdue it. The present Dr. Babington, the son of the late eminent physician of that name, saw the case with me, and was present at the *post-mortem* examination when we saw the pericardial surface of the heart covered with a large quantity of purulent matter. That gentleman, who has very extensive experience, took very great interest in the case, and considered it one of very rare occurrence.

HEART (INFLAMMATION OF THE). This case is hardly to be separated from pericarditis by any known methods of discrimination; therefore, they come under one head in symptoms, treatment, and *post-mortem* appearances. When inflammation of the heart is not subdued by prompt applications, it will terminate in effusion of serum from its own covering and from the pericardium which surrounds it, or pus from the same sur-

faeces. If the former termination take place to a great extent, it may prove fatal; if, on the contrary, the effused fluid be moderate, it may be absorbed, and slight adhesion remain, without any serious inconvenience to the patient; but if pus should be effused from the same surfaces the chances are less, if such cases are not hopeless. When serum is effused from the pericardiac surfaces in quantity, there is a sense of coldness, weight, and oppression in the situation of the heart, attended with irregular actions of the pulse. When these positions are recognized, great quiet, plain diet in great moderation, and such medicines as are best known to assist absorption would be the best treatment. All adhesions or effused fluids about the heart itself must more or less interfere with its actions; therefore the state of the pulse, combined with the situation of the other symptoms, will generally determine the nature, character, and treatment of such affections.

VALVES (OSSIFICATION OF). Old age produces these sort of cases, and little or nothing can be done for them. - Palpitation, intermitting pulse, difficulty of breathing, and fainting are among the leading symptoms of these cases, as well as those of many other alterations in the structure of the heart. As they are principally

the productions of age, and as such alterations are destined to conclude sooner or later the natural life of man, yet he may with them arrive to the full end and term of human existence.

In all such organic changes, quiet, light food in reduced quantity, and a guard against colds, and against the influence of atmospheric changes, will be the best mode of regulating those who are known to be so affected.

HEART (RUPTURE OF THE). The whole of the cavities of the heart become dilated, either from the blood being thrown back upon the heart by physical exertions, or by the pulmonary or other spaces being gradually obliterated, or by debility in the muscular fibres themselves. In all these cases enlargement is sure to follow, and the boundaries of those cavities are so thin and weak, that rupture becomes probable upon any ordinary exertion.

Such cases as these are fortunately of rare occurrence, and their discovery cannot lead to much practical good, in consequence of the great organic alterations which must occur to produce them.

MALFORMATIONS. These cases may be looked upon as mockeries of the human structure, such as are sometimes seen in the outward forms of

men and animals. The malformations in heart cases are such as to be incompatible with life, and fortunate it is that such a disposition should rule those cases. So far as we know, nothing can be done for them by the hand of art, and nature which creates them often compensates by the creation of other powers, which in some degree neutralize them.

POLYPI, SPOTS, BONES, CONCRETIONS, HYDATIDS, &c. &c., are all rare diseases of the heart, but nevertheless they have been found and reported upon by Morgagni, Bonetus, and others. None of them, however, have laid down any plans for treating such cases; therefore they must be considered as irremediable, and as changes designed for the destruction of life which He in His wisdom so beautifully created.

AORTIC ANEURYSM.

THE aorta is the larger one of the two great arteries of the body, and was supposed by the ancients to contain air. It gives blood to all parts of the body for their nourishment, and supplies the several viscera and other structures with the same blood for the elaboration of various secretions, without which life could not be maintained. This great vessel begins at the heart, and runs along by the side of the spinal column, until it reaches the sacrum, where it terminates, as the aorta. In this course it is divided by anatomists into three portions, namely, the arch, thoracic, and abdominal; and they also give it three coats or walls, namely, the outer, inner, and middle, or the cellular, clastic, and muscular; all of which are joined together so as to form a strong tube, which gives passage to the arterial blood for the purposes before mentioned.

All dilatation or morbid changes in this great vessel are unfortunately irremediable. The operation of tying any portion of it would be needless,

as the supplies to the several viscera for their nutrition and secretion would be cut off, without any compensation by the process of anastomosis ; while in the small arteries towards the extremities the same operation is most frequently successful, in consequence of this intercommunicating process being common among them.

If much cannot be said upon the cure of aortic aneurysm something can be said upon its prevention, as regards dilatation of the vessel from physical exertion ; but when old age brings on morbid deposits, such as fat, bone, or other such materials upon or between the coats of the artery so as to originate the disease, then it would be a waste of time to offer anything upon them, as such changes are seldom revealed to the medical practitioner before death, and if they were his efforts in remedies would be powerless.

It is between thirty and forty years of age, when the physical powers are most frequently employed, that aneurysm by dilatation most frequently occurs ; the subject of such cases being generally plethoric, and having employments which require great physical exertion.

The powerful efforts which females make during long and difficult labours tend to the same consequences, and hence it is that internal aneurysm is less frequent among men than women.

When there is any muscular pressure upon the arteries of the extremities, and particularly when there are large deposits of fat throughout the cellular tissue, the tendency must be to throw the blood backwards upon the heart, and the resistance which is given to it by the strong muscles of that organ is much greater than that which can be given by the walls of the artery at its origin, is I presume the cause why aneurysm happens more frequently in the arch of the aorta than in any other part of the same vessel, or in the heart itself.

A spare habit, the result of a temperate life, a careful employment of the mental and physical resources, will go far to extend life to its natural limits; while the contrary must lead to organic changes, which compel a tenancy of the grave prematurely, and often before arrangements can be made which might save dependents or the more serious ties from many painful and calamitous consequences.

INDEX.

	PAGE		PAGE
Abernethy, Mr.	6	Brodie, Sir Benjamin	27
Alcoholic spirits	30, 31	Bronchi	95
Aneurysm, aortic	214	Bronchitis, chronic	97
Animal heat	27, 50		
Appetites, depraved	16	Carbon	63
Army	173	Careme	45
Asthma	182	Chemical forces	23
characters of	<i>ib.</i>	Cholesterine	33
beginning of	183	Climates	172
cause of	185	Cookery	19
from fear	186	Cold, action of	53
case of	<i>ib.</i>	Consumption	76, 77
from expansion	188	laryngeal	77, 93
physician's case of	195	Croup	84
nervous	<i>ib.</i>	spasmodic	87
cases	20		
Atmospheric influences	33, 113	Diarrhœa	147
		singular case of	150
Bile	72	Emetics	199
Blood	175-200	Excretions	49
Bones, ulceration of	138		
case of	141	Fats	26, 31, 32, 37

	PAGE		PAGE
Flesh, composition of	26	Laryngotomy . . .	94
Foods . . .	41	Lavements . . .	60
adulteration of .	48	Leucorrhœa . . .	152
tables of . . .	55, 56, 57	Liebig, Professor . .	12, 23
General principles .	23	Life . . .	14, 15, 20, 25
Glanditis (scrofula)	115	Lung or pulmonary dis-	
mesenteric . . .	<i>ib.</i>	case . . .	75
case of . . .	116	Lungs . . .	76
cervical . . .	119	wasting of . . .	77, 178
Hahnemann . . .	11	emphysema of . .	191
Hamilton, Dr. (Edinburgh)	148	earthy concre-	
Hemorrhoids (piles)	145	tions in . . .	104
Heart . . .	202	case of . . .	<i>ib.</i>
inflammation of	210	nervous disease of	101
ossification of .	211	parenchymatous dis-	
rupture of . . .	212	ease of . . .	102
malformation of	<i>ib.</i>	Majendie, Professor	17, 102
polypi, &c., &c.	213	Mechanical injuries	169, 170
Homœopathy . . .	9	Medical sciences . .	38, 72
Hydrogen . . .	26	Medicines . . .	9
Jenkins, Henry . .	15	Milk, human . . .	48
Joints, diseases of .	124	Nitrogen . . .	26
case . . .	127	Noxious effluvia . .	35
case . . .	129	Nutrition . . .	26, 36
Lactation . . .	156	Oxygen . . .	25
case . . .	161	Parenchyma . . .	107
case . . .	163	Parr, Thomas . . .	15
case . . .	165	Pharmacopœia . . .	10, 13
case . . .	166	Pleuræ . . .	107
Larynx . . .	77	ossification of . .	110

INDEX.

219

	PAGE		PAGE
Pleuræ, chronic inflam-		Tcething . . .	88
mation of . . .	109	Temperature . . .	172
Pericarditis . . .	208	Thoraco-muscular dis-	
Pericardiac adhesions	209	case . . .	113
effusion . . .	<i>ib.</i>	Trachea . . .	94
Prout, Dr. . . .	28-66	Tracheotomy . . .	<i>ib.</i>
Psoas abscess . . .	135	Ude . . .	45
case of . . .	136	Urine . . .	61
Pulse . . .	297	Urinary calculi	64, 68, 74
intermitting . . .	208	deposits . . .	69
Pus . . .	<i>ib.</i>		
Respiratory organs . . .	1	Vasculo-pulmonary dis-	
Roven, Peter . . .	15	case . . .	99
		case of . . .	106
Serofula . . .	115, 123		
Skin . . .	50	Water . . .	47, 61, 65
Spinal disease . . .	131		
case of . . .	133	Zoten, Peter . . .	15
Surgery . . .	57, 72		

THE END.

By the same Author.

In the press, and shortly will be published,

PART II.

ON DISEASES OF THE URINARY ORGANS,

With numerous cases illustrating the advantages of Modern Science
over former methods when applied to the cure of disease.

